THE UNIVERSITY OF ALBERTA

A STUDY TO IDENTIFY WORD PROCESSING COMPETENCIES IN OFFICE POSITIONS IN THE YORKTON, SASKATCHEWAN, AREA

©

BY

BERNICE LORRAINE EWACHOW

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF EDUCATION
IN
VOCATIONAL EDUCATION

DEPARTMENT OF ADULT, CAREER AND TECHNOLOGY EDUCATION

EDMONTON, ALBERTA
FALL, 1991

National Library of Canada
Bibliothèque nationale du Canada

Canadian Theses Service
Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-70280-X

Canadä

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR Bernice L. Ewachow

TITLE OF THESIS A STUDY TO IDENTIFY WORD PROCESSING
COMPETENCIES IN OFFICE POSITIONS
IN THE YORKTON, SASKATCHEWAN, AREA

DEGREE FOR WHICH THESIS WAS PRESENTED MASTER OF EDUCATION

YEAR THIS DEGREE GRANTED 1991

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

(Signed) Ewachow

PERMANENT ADDRESS:
182-D Manitoba Avenue
Yorkton, SK
S3N 3G8

DATED: September 20, 1991

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled A STUDY TO IDENTIFY WORD PROCESSING COMPETENCIES IN OFFICE POSITIONS IN THE YORKTON, SASKATCHEWAN, AREA, submitted by Bernice L. Ewachow, in partial fulfillment of the requirements for the degree of Master of Education.

....
Dr. C. H. Preitz

....
Dr. L. S. Beauchamp

....
Dr. J. F. D. Ilott

September 20, 1991
DATE ....

DEDICATION

To my loving father, Walter Pankevich,
for his encouragement in continuing education.

ABSTRACT

The role of the secretary has changed due to the automation of office procedures, and word processing is the core for this change. The primary purpose of this study was to obtain information via survey of Yorkton, Saskatchewan, area business offices of the job competencies required of employees designated as word processing operators in these offices. The results of the study would have implications for curriculum planners when designing basic word processing courses.

The population was selected from a database of all the businesses in the Yorkton area which were within a radius of 50 km, which employed at least 10 employees, and which used word processing equipment for at least two hours a day or ten hours a week in their office operations. Twenty-seven businesses qualified and all agreed to participate in the study.

The research instrument was a two-part questionnaire which contained questions requesting demographic data and interval data in identifying frequency of use of word processing enabling skills in the work situation. Sixty enabling skills were divided into twelve general areas of competencies. After a pilot study, the reviewed and revised questionnaires were mailed or hand delivered to the 27 participants and all questionnaires were returned. The data were analyzed and placed in tabular and narrative form.

The major conclusions of the study were:

(1) Of the 60 enabling skills that were identified, 34 were being performed either "frequently" or "very frequently" by the participants and should be considered for inclusion in a basic word processing course.

(2) IBM computers or IBM compatibles were the most popular equipment used for word processing. The most popular software programs were WordPerfect for word processing, Lotus 123 for spreadsheets, and D-Base III for database management.

(3) The most listed employment positions in the Yorkton area that required word processing competencies included Secretary, Administrative Assistant, Clerk-Typist, and Receptionist.

Finally, the researcher concludes that a cooperative form of education between business/industry and the educational institute would prove beneficial to both the student and the business/industry in identifying and acquiring the necessary skills and knowledge required for success on the job.

ACKNOWLEDGEMENTS

The author wishes to extend sincere gratitude to Dr. C. H. Preitz, thesis supervisor, for his patience, guidance, and encouragement throughout the preparation of this thesis. Special thanks are also extended to Dr. J. F. D. Ilott and Dr. L. S. Beauchamp for serving on the thesis committee.

A special acknowledgement is extended to Dr. S. Hunka of the Department of Educational Psychology for reviewing and providing constructive criticism to the researcher in the development of the research instrument.

Appreciation is extended to all word processing supervisors and operators in the Yorkton area business offices who agreed to take part in the investigation and completed the questionnaires. Their cooperation was very encouraging.

Finally, special gratitude is extended to all my family and friends for their understanding and encouragement during the time this thesis was being produced.

TABLE OF CONTENTS

CHAPTER PAGE

I THE PROBLEM 1

Introduction 1

Need for the Study 3

Problem Statement 5

Subproblems 5

Significance of the Study 6

Delimitations 8

Limitations 9

Assumptions 9

Population 10

Selection of Participants 10

Instrumentation 11

Instrument Design 12

Pilot Study 13

Operational Definitions 13

Automated Office 14

Businesses 14

Competencies 14

Database 14

Information Processing 14

Software 15

Spreadsheet 15

Word Processing 15

Word Processing Competencies 16

CHAPTER PAGE

Word Processing Operator 16

Word Processor 16

Methodology 16

Introduction 16

Research Procedure 17

Organization of Thesis 21

II RELATED LITERATURE AND RESEARCH 22

Introduction 22

Related Literature 24

History of Word/Information Processing 25

Structure of the Automated Office . 31

Multi-Function Systems 32

Impact on Business/Office Education Programs 34

Office Education Program in Yorkton, Saskatchewan 44

Related Research 49

Powell 49

Persons 51

Jacobson 53

Marchand 55

Summary 58

III ANALYSIS OF DATA 62

Introduction 62

Interpreting Research Data 63

CHAPTER PAGE

Part A: Demographic Information . . . 63

Part B: Word Processing Competencies Checklist 86

The Competency Checklist 86

The Word Processing Competencies . . 87

General Area of Competence - 1. Set Up the System 88

General Area of Competence - 2. Keyboard (Input) - I . . . 89

General Area of Competence - 3. Keyboard (Input) - II . . 90

General Area of Competence - 4. Create Documents 92

General Area of Competence - 5. Reformat Text 93

General Area of Competence - 6. Minor Correcting and Proofing 94

General Area of Competence - 7. Major Editing and Revising 95

General Area of Competence - 8. Store and File Text . . . 96

General Area of Competence - 9. Recall and Retrieve Text . 97

General Area of Competence - 10. Print (Output) Text . . . 98

General Area of Competence - 11. Execute Special Features . 100

General Area of Competence - 12. Execute Other Specialized Functions 102

CHAPTER PAGE

IV SUMMARY, FINDINGS, CONCLUSIONS, RECOMMENDATIONS, AND OBSERVATIONS DERIVED FROM THE STUDY 104

Introduction 104

Summary 105

The Problem 106

Population and Selection of Participants 107

The Research Instrument 108

The Pilot Study 109

Need for the Study 109

Methodology 110

Related Research 111

Findings and Conclusions 115

Demographic Information - General 115

Significant Word Processing Competencies 118

General Area of Competence - 1. Set Up The System 119

General Area of Competence - 2. Keyboard (Input) - I . . . 120

General Area of Competence - 3. Keyboard (Input) - II . . 120

General Area of Competence - 4. Create Documents 121

General Area of Competence - 5. Reformat Text 121

General Area of Competence - 6. Minor Correcting and Proofing 122

CHAPTER PAGE

General Area of Competence -
7. Major Editing and Revising 123

General Area of Competence -
8. Store and File Text . . . 123

General Area of Competence -
9. Recall and Retrieve Text . 124

General Area of Competence -
10. Print (Output) Text . . . 125

General Area of Competence -
11. Execute Special Features . 125

General Area of Competence -
12. Execute Other Specialized Functions 126

Positions Requiring Word Processing Competencies 127

Word Processing Equipment and Software Used in Research Area 129

(1) Equipment 129

(2) Software 130

Additional Word Processing Competencies Required 131

Keyboarding Speed and Accuracy Recruitment Requirements 132

Recommendations Derived From the Study 133

Recommendations to Curriculum Planners 133

Recommendations to Continuing Education Personnel 136

Recommendations for Further Research 138

Observations 139

PAGE

BIBLIOGRAPHY 142

APPENDIX A - COVERING LETTER AND RESEARCH INSTRUMENT 148

APPENDIX B - COPY OF PART B OF MARCHAND'S RESEARCH QUESTIONNAIRE 158

APPENDIX C - BUSINESSES PARTICIPATING IN THE STUDY 166

VITA 168

LIST OF TABLES

TABLE PAGE

1 Size of Company 64

2 Employees Requiring Word Processing Competencies 65

3 Word Processing a Requisite for Recruitment 66

4 Job Title Requiring Word Processing Competencies 68

5 Type of Office Technology Used for Word Processing 69

6 Name of Electronic Typewriters Used for Word Processing 70

7 Trade Name of Word Processor Used for Word Processing by Participating Companies 71

8 Trade Name of Microcomputers Used for Word Processing by Participating Companies 72

9 Other Types of Office Technology Used by Participants to Process Words 73

10 Name of Software Package Word Processing Operators Used 76

11 Number of Participants with Centralized Word Processing Centers 77

12 Hours Per Week Devoted to Word Processing by Participants 79

13 Computer Pre-Employment Tests Used to Determine Word Processing Competencies of Applicants 81

14 Word Processing Competencies Required of Entry-Level Employees 83

15 Ability to Use Various Software Programs . . 84

16 Software Programs Beginning Word Processing Operators Should be Familiar With 85

TABLE PAGE

17 Enabling Skills Performed by Participants
General Area of Competence:
1. Set Up The System 89

18 Enabling Skills Performed by Participants
General Area of Competence:
2. Keyboard (Input) - I 90

19 Enabling Skills Performed by Participants
General Area of Competence:
3. Keyboard (Input) - II 91

20 Enabling Skills Performed by Participants
General Area of Competence:
4. Create Documents 92

21 Enabling Skills Performed by Participants
General Area of Competence:
5. Reformat Text 93

22 Enabling Skills Perfomed by Participants
General Area of Competence:
6. Minor Correcting & Proofing 94

23 Enabling Skills Performed by Participants
General Area of Competence:
7. Major Editing & Revising 96

24 Enabling Skills Performed by Participants
General Area of Competence:
8. Store & File Text 97

25 Enabling Skills Performed by Participants
General Area of Competence:
9. Recall/Retrieve Text 98

26 Enabling Skills Performed by Participants
General Area of Competence:
10. Print (Output) Text 99

27 Enabling Skills Performed by Participants
General Area of Competence:
11. Execute Special Features 101

28 Enabling Skills Performed by Participants
General Area of Competence:
12. Execute Other Specialized
Functions 103

LIST OF MAPS

MAP PAGE

1 Locations of SIAST Campuses 46

CHAPTER I

The Problem

Introduction

Rapid changes in office technology, new systems and procedures, the changing nature of office jobs, growing opportunities for advancement, and new careers related to information processing have brought about the need for examining the skills and knowledge required for employment in today's automated office. Professional management and business education journals support the fact that advanced technology affects the role and competencies of the office employee (Hosler, 1988).

Certainly the electronic office is here and this technology is dramatically changing procedures and processes in the office; as a consequence, the role of the secretary is changing. "Many of the traditional areas of female employment may be jeopardized by the anticipated trends stemming from technological innovations that may be brought into the office" (Marchand, 1985, p. 34). Secretaries must have the ability to use and select software such as spreadsheets, word processing, and databases for the job at hand (Lambrecht, 1989); they must be knowledgeable enough to make intelligent selections of various software which are flooding the market.

Office personnel are assuming more administrative duties with all the information and technology that is available to them, as well as assuming a closer working relationship with management. With ever faster, more versatile computers and with new developments such as electronic mail systems, the scope of services done by office personnel has changed greatly (Powell, 1988).

Marchand (1985) supports the view that technology will likely change the skills required by office clerical workers of the 1990s.

> Because a different set of [secretarial] skills are being looked for now than in the past, interviewers and other selection people need to be tuned in to these new skills and to the fact that the work environment is different from that in the past. (Marchand, 1985, p. 33)

Saskatchewan Education also acknowledges that changing technologies will create changes in employment needs and has adopted a new technical institute model.

> To succeed, the technical institute of the future must be able to respond quickly to changing technologies and shifts in employment demand. It must work closely with business and industry. It must have the finances necessary to acquire state of the art excellence in new technologies. And it must incorporate the modern management and decision-making techniques that will enable it to act decisively and responsively. (Saskatchewan Education, 1987, p. 6)

The principles underlying the implementation of this new institute model include:

> Adult education is the key to our future economic security. It must play a major role in the province's economic diversification strategy.
>
> As adult education and retraining become more of a necessity for future employment, access must be provided more equitably to all groups and regions in the province.

> There must be an expanded focus on the needs of older workers for retraining. Education must become a lifelong endeavour. (Saskatchewan Education, 1987, p. 5)

Futurists predict that an average worker's responsibilities may change five or more times during his/her career life--each career change will require the learning of new skills. To take advantage of these changing career opportunities, today's adults require a wide range of training and preparation (SIAST Calendar, 1991-92). The Saskatchewan Institute of Applied Science and Technology (SIAST) offers several career education options to the student to accommodate their differing needs and to provide a variety of ways for the learner to gain this education. Programs that are offered range from adult basic education and upgrading to high technology professional certification.

Need for the Study

Word processors have become common pieces of equipment on the desktops of secretaries throughout the 1980s. Employees who worked with this equipment were usually those already employed in the firm. The training for these employees to learn how to operate the new equipment generally was done by either the vendor or the manufacturer of the equipment. Trainees were those employees who were either assigned by a supervisor to work with the new equipment or who volunteered to take the training to increase their competencies.

Because of the newness of word processing as a concept and as a practice and because of the costs involved in installing new systems, only recently did word processing become a part of the post-secondary Office Education Program at Yorkton, Saskatchewan, which is affiliated with the Wascana Campus of SIAST. One of the primary objectives of this program is to have adult students acquire job-entry level employment skills in office occupations which meet the needs of employers in the service area of the institute.

Preliminary research of the Educational Research Information Center (ERIC) database indicated that little research has been conducted in Canada that investigated job entry-level employment skills for word processing personnel. Research that has been completed was centered around business offices in large urban centers such as Edmonton and Calgary (Jacobson, 1986; Marchand, 1985). The lack of such data for small urban centers helped establish a need for this study. Many researchers and authors of articles for business education journals identify the need to constantly up-date research information concerning the educational requirements of job-entry level office workers because of changing office technology and procedures. This void helped to establish the need for this study as well as provided the researcher with a research problem to be investigated.

Problem Statement

The problem of this research was to determine the word processing competencies that were required of office employees who were word processing operators in business offices within the service area of the city of Yorkton, Saskatchewan.

Subproblems

In support of the major problem, the following subproblems were formulated:

What employment positions existed in business offices in the Yorkton area that required the employee to possess word processing competencies?

What types of word processing equipment and software were in use in business offices in the Yorkton area that required word processing competencies?

What additional word processing competencies were required by those who filled word processing positions in business offices in an ex-urban area such as the Yorkton area?

What were the keyboarding speed and accuracy recruitment requirements for entry-level word processing operators in business offices in the Yorkton area?

Significance of the Study

A major significance of the results of the study was to determine whether or not the curriculum of the Office Education Program offered at Yorkton meets the needs of employers and word processing personnel in the service area of the school. The study has significance because these results provided information as to the type of equipment that is in common use in business offices in the service area and the type of software programs that are being used. Curriculum planners and educators responsible for the Office Education Program in the SIAST system could use this information to determine the scope of the content that is needed to present a word processing training program that is relevant and which meets the needs of employers in smaller cities in the province of Saskatchewan.

The results of the study identified relevant content which could serve as a motivator for the students enrolled in the Office Education program. These students now know what word processing skills are required in the business offices where they seek employment upon successfully completing the program. These potential employees could also experience less stress knowing that the equipment, software, and procedures which they were learning were the same that they would be using when they enter a business office in the Yorkton area as an employee. They could be confident that they possessed appropriate skills and knowledge to meet the challenge of the job. This added significance to the study.

The results of this study may have significance for curriculum planners and educators of Office Education programs at the provincial level to determine whether there is any difference between the entry-level word processing competencies required by office personnel in small urban areas than those that are required in large urban areas. Recent studies indicate that the one-year office education programs were inadequate to meet the needs of graduates and employers in large urban areas and recommendations are made towards a two-year program (Morrison & Morrison, 1989).

The findings from this study may be significant to administrators and program planners of the SIAST Office Education Program, Wascana Campus, Regina, to determine instructional content of programs that are implemented in smaller satellite areas of the province outside the city of Regina.

The results of this study could update similar studies that were completed after 1980 (Powell, 1988; Persons, 1986; Marchand, 1985) and provide a basis of determining entry-level word processing competencies in the business offices of the 1990s in the Yorkton area. Because most of Saskatchewan is comprised of smaller urban centers such as the one identified in this study, results may also be generalized to other areas of the province.

The Occupational and Career Analysis Development Branch of Employment and Immigration Canada may find the results of this study significant in analyzing and preparing an occupational analysis for the occupation of word processing operator. This analysis could list the significant word processing competencies identified by the population of this research and compare/ contrast them with word processing competencies identified throughout the country to determine those common to this evolving occupation.

Delimitations

This study was delimited to:

Yorkton, Saskatchewan, and the area surrounding this city for a radius of 50 km (kilometres) including the towns of Melville, Kamsack, Canora, and Grenfell;

word processing supervisors or operators in business offices, both public and private sectors, who employed at least 10 employees and who used word processing equipment for at least two hours a day or ten hours a week in their office operations; and

the questions on the research questionnaire. These questions were intended to identify only those skills and knowledge specifically related to word processing functions and to investigate other computer applications skills only as they affect the job performance of entry-level word processing operators.

Limitations

The limitations of the study were determined by:

the cooperation of the research participants and the accuracy of responses they gave on the questionnaire;

the interpretation and completeness of the research instrument used to collect the data.

Assumptions

The following assumptions were made for this particular study:

that word processing competencies can be identified by a sample of word processing operators and/or supervisors in business offices in the Yorkton area;

that those who participated in the study made valid and accurate responses to questions on the questionnaire;

that business offices employing less than ten employees did not likely use electronic word processing equipment in their daily operations and that numerous phone calls and much time would have been spent in identifying the few that would have met the required criteria established for this study.

Population

The population of the study consisted of word processing supervisors and/or operators in business offices in the Yorkton area which employed at least ten employees and who used electronic word processing equipment for processing information for an average of at least two hours a day or ten hours a week. The total population of businesses within a radius of 50 km of Yorkton that employed at least ten employees was selected from a database provided by Brock and Associates. This list contained a total of 184 businesses. The researcher stratified this list by contacting every second business on this list (92 businesses) to determine which of these businesses met the selection criteria. Of the 92 businesses contacted, 27 met the criteria for selecting participants and all agreed to participate in the research.

Selection of Participants

The following criteria were used to identify the population for this investigation:

> The business offices selected had to be either in the city of Yorkton or within a 50 km radius of the city;
>
> the businesses selected had to employ at least ten employees and had to use word processing competencies for an average of at least two hours a day or ten hours per week in their information processing systems.

Instrumentation

In order to determine the type of instrument to use in collecting the data for this study, a review of the literature on instrument design was made. From that review the researcher made the decision to use a questionnaire to collect data for analysis for the following reasons: a questionnaire can be readily reproduced and mailed to members of the research population at a relatively low cost; the data collected with this type of instrument are considered to be objective and are easy to tabulate; respondents can remain anonymous.

Although a questionnaire has its advantages as a data collecting instrument, it also has disadvantages or limitations. The limitations of using a questionnaire include the following possible consequences: a possible low rate of return; misinterpretation of items on the questionnaire by the respondents; respondents missing or omitting an item or checking off more than the required number of responses; selected responses may not be applicable to the respondent; accurate responses are limited to the respondent's time and incentive in completing the questionnaire.

The researcher also located a questionnaire that was developed by a recent researcher which was considered to be applicable to the current study. Marchand (1985) developed a two-part questionnaire to collect data for her research which was a comparison of entry-level word processing enabling skills to the first year work skills required of a word processing operator. Only Part B of Marchand's questionnaire was selected for use in this study (see Appendix B, p. 158).

Instrument Design

The research instrument designed for this study was a two-part questionnaire. PART A of the research instrument was used to collect demographic data that identified the size of business, the positions in the participating businesses that required word processing competencies, the number of word processing positions within that business, the equipment and programs used for word processing functions, and the recruitment requirements for individuals who filled these positions. This information was necessary to establish reliability of the research and for application of the findings.

PART B of the questionnaire listed the general areas of word processing competencies and the enabling skills that make up these competencies that resulted from the research completed by Marchand (1985) who granted the researcher permission to use them. A 5-point Likert scale with the choices "very seldom," "seldom," "occasionally," "frequently," and "very frequently" were the choices offered the participants to rate each competency.

The questionnaire in draft form was reviewed by a specialist in instrument design, Department of Educational Psychology, Faculty of Education, University of Alberta. The necessary editing and adjustments resulting from this review were made by this researcher to produce the questionnaire in its final form.

Pilot Study

Prior to being used in the major portion of the research, the research instrument was used in a pilot study. The pilot study was conducted by the researcher with three word processing operators who met the criteria for selecting participants and who agreed to assist in this phase of the research. These participants were selected for this portion of the research because they were readily available to the researcher. Each participant received and completed a copy of the questionnaire and was asked to record the time it took to complete the questionnaire and to identify any questions that were ambiguous or poorly written. Each participant was interviewed to determine whether the questions were clear and well structured, whether all instructions were clear and specific, and to determine the amount of time it took to complete the questionnaire. Following the pilot study the research instrument was revised using the results of the pilot study.

Operational Definitions

The following operational definitions are included to clarify the terminology used in the study so that a common understanding could be established between the researcher and the reader:

Automated office: An office that optimizes social and technological aspects for the purpose of high employee productivity while emphasizing human factors in the working environment (Jacobson, 1986, p. 4).

Businesses: Business offices within the service, industrial, educational, and governmental sectors were placed under this generic term for the purpose of the study.

Competencies: Those skills, knowledge, and attitudes required with a particular trade or occupation (Marchand, 1985, p. 23).

Database: A collection of interrelated information stored together within a computer system (Kupsch & Whitcomb, 1987, p. 291).

Information processing: The merging of data processing and word processing through the use of computers (Kupsh & Whitcomb, 1987, p. 294); process of information management that organizes and co-ordinates the creation, distribution, and storage of information in a systematic manner (Hume, 1989, p. 528).

Software: A set of instructions or a program that tells a computer what to do (Kupsh & Whitcomb, 1987, p. 299).

Spreadsheet: A worksheet containing figures in rows and columns that can be used for a number of purposes, such as preparing balance sheets (Kupsh & Whitcomb, 1987, p. 299).

Word processing: For the purpose of clarity, three definitions have been provided which complement each other:

(a) A method of producing written communication at top speed, with the greatest accuracy, the least effort, and the lowest possible cost, through the combined use of proper procedures, automated equipment, and trained personnel (Jacobson, 1986, p. 5).

(b) The processing of words with computers, including making corrections in text electronically, preparing form letters, storing documents for future use, and merging separate documents (Kupsh & Whitcomb, 1987, p. 301).

(c) The production of typewritten documents with automated and usually computerized text-editing equipment (New Merriam-Webster Dictionary, 1989, p. 847).

Word processing competencies: Tasks which are specifically related to successful performance in a word processing position (Powell, 1988, p. 8).

Word processing operator: A communications specialist who processes most types of communications into final typewritten copy through the use of automated equipment (Powell, 1988, p. 9); operates video-console typewriter to record and amend data on memory tapes, disks or other recording devices (Canadian Classification and Dictionary of Occupations Guide, 1989, p. 75).

Word processor: Machine used to capture and edit text in a magnetic format (Kutie, 1989, p. 535).

Methodology

Introduction

This study was done to determine what word processing skills and competencies are required by personnel in business offices within the Yorkton area, what employment positions exist requiring these competencies, what word processing equipment and programs are prevalent in the working environment, and what the recruitment requirements are for the positions requiring word processing. A survey was made of those business offices in the Yorkton area which used word processing functions at least two hours a day or ten hours a week to obtain the required information. This information would serve the researcher and other educators in this area to evaluate whether the word processing course taught in the SIAST Office Education Program at Yorkton meets the entry-level requirements of graduates who enter the world of work.

Research Procedure

The following methodology was used to bring the research to its conclusion.

To collect data for the literature review and for analysis for this investigation, a computer search was conducted of the Educational Resources Information Center (ERIC) database in May, 1990. To conduct that search the following descriptors were taken from the Thesaurus of Descriptors (1986): task or job or skill analysis and word or information processing. From this search a total of 35 citations (hits) were obtained. Included in these citations were abstracts of journal articles, education reports, and doctoral dissertations. From a review of these abstracts, it was found that no research was reported that had been completed in Canada that investigated the word processing skills needed by employees employed as word processing operators. This absence helped determine a need for this study. Two doctoral dissertations listed in the 35 citations were selected for purchase because of their implication for the current study. These dissertations were completed by Persons in 1986 in Worchester, Massachusetts, and by Powell in

1988 in the state of Arkansas. These two studies are described under Related Research in Chapter II.

In addition to conducting the electronic database search, a manual search was made of the indices that report the findings of educational research. Among these indices searched were: Dissertations Abstracts International, Canadian Education Index, and the Directory of Education Studies. A search was made also of the theses and doctoral dissertations shelved in the H. T. Coutts Library, Faculty of Education, University of Alberta. Among the theses shelved was one completed by Marchand (1985) A Study To Compare Entry Level Word Processing Enabling Skills To First Year Work Skills. A colloquium Office Automation and Secretarial Careers by Jacobson (1986) was also found at the H. T. Coutts Library.

To identify businesses in the service area, the researcher contacted the Yorkton Chamber of Commerce and was directed to Brock and Associates, an agency who had developed a database listing all the businesses in the metropolitan area of Yorkton. The researcher's request was readily acknowledged. The database that was retrieved identified the name of the business, the type of business, the size of the business, the number of employees, the address, the phone number, and a contact person. A list of 184 businesses, which employed a minimum of 10 people, comprised the database which included all the businesses within the city of Yorkton and within a radius of 50 km (kilometres) of the city. This list included businesses in the service sector, the industrial sector, the educational sector, and the governmental sector at both federal and provincial levels. All businesses outside the 50 km radius were eliminated from the research. It was assumed by the researcher and by the database operator, who was familiar with the businesses on the database, that most of the businesses with less than ten employees would be sole proprietorships and would not likely have a word processing operator.

From a review of resources on instrument design, the researcher made the decision to use a questionnaire as a data collecting instrument. It was evident from that review that the questionnaire has both advantages and disadvantages of which a researcher should be aware. The process that was followed in designing this two part instrument is presented in the section titled "Instrumentation."

Prior to being used in the study, the research instrument was used in a pilot study with three word processors who met the selection criteria established for participants. These individuals were used because they were readily available to the researcher. The purpose of the pilot study was to make modifications or revisions to the questionnaire before it was used with the research population. How the pilot study was conducted can be found in an earlier section of this chapter.

From the list of 184 businesses identified as the research population, the researcher made telephone contact with every second business office (92 businesses) for these purposes: (1) to identify those businesses which met the criteria established for selecting participants--the use of word processing competencies at least two hours per day or ten hours per week; and (2) to request their support to the study by completing and returning the research questionnaire. Using this procedure, 27 of the 92 businesses met the word processing requirements and all 27 agreed to become involved in the study. This represented 29% of the 92 businesses contacted.

The researcher formulated a covering letter that explained to the participants their role in the study, provided them with a deadline date for the return of completed instruments, and informed them that research ethics will be adhered to in all phases of the study and that they may withdraw from the study at any time without prejudice. The covering letter became part of a research package that included the questionnaire with directions and a self-addressed stamped envelope. (Appendix A, page 148, contains a copy of this letter.) This package was sent or hand delivered to those 27 participants involved in the investigation.

A follow-up procedure was not required as all 27 questionnaires were returned within the established deadline date stated in the covering letter. This resulted in a 100% rate of return.

The data collected with the research instrument were analyzed by the researcher. The frequencies and percentages were calculated manually by the researcher and are presented in tabular form and are analyzed in narrative form in Chapter III. From these data the research findings, conclusions, recommendations, and observations were formulated and are reported in Chapter IV.

Organization of Thesis

The remaining chapters of this report have the following organizational pattern:

The second chapter includes a review of related literature and the findings of related research studies that have either a direct or indirect relationship to the current investigation.

The third chapter reports on the data analysis of the study and the findings derived from the analysis of the collected data.

The fourth and final chapter summarizes the study, providing findings, conclusions, recommendations, and observations that were generated from the data collected.

CHAPTER II

Related Literature and Research

Introduction

The first chapter of this report detailed the development of the research instrument, the selection of the research sample, and the methodology that was used to collect data for analysis.

This chapter is divided into two sections. The first section presents a review of related literature, as well as notes taken from personal interviews that were used to develop a scenario of the present and possible future changes in the office and the implications that these changes will have on word processing curriculum. The second section of this chapter presents a review of research that has been conducted and reported which had implications to the current study.

Word processing technology invaded the traditional office of the 1960s with exciting new ways of processing business communication. This technology was in constant flux and transition for the next two decades and even today, at the advent of the 1990s, modern offices are struggling to keep up with the latest in this time and labor-saving device that promises more efficient and more economical production of business correspondence. The major consideration of this literature review was to investigate the changes the word processing concept has made in the decade of the Eighties and its projected impact on the modern office of the Nineties. The instructors of business/office education programs need to keep abreast of this popular technology and be alert to its newest competencies. For this reason the literature review and related research reported in this study was focused mainly on that which has been written and researched since 1980.

It will be recalled that the researcher used the ERIC database to identify other researches that were completed on the topic of word processing competencies. The descriptors that were used in this electronic database search are listed in Chapter I under "Methodology." These descriptors yielded a total of 35 citations (hits) found in this database. From these citations their abstracts were reviewed and two dissertations were selected, purchased and reviewed because of their relationship to this study. These dissertations were written by Powell (1988) and Persons (1986) and are reported in the second section "Related Research" of this chapter.

Also included in these citations were a number of articles on office automation, word processing, and information processing that had some relationship to this study. These articles were reviewed and are reported in the section of this chapter entitled "Related Literature."

Related Literature

Within the professional literature there are articles that have appeared in journals, bulletins, periodicals, and speeches delivered at professional conventions that deal with business education, office education, information processing and word processing. For the purpose of this investigation, these are given the generic title of related literature. Those that are related to this research will be reported in this section.

Technological changes have occurred in the office work environment in the past two decades that reflect the concept of office automation. These changes have had a dramatic impact on many companies which had to re-evaluate their secretarial needs and reassess their recruitment requirements. Not only are the basic skill requirements and responsibilities of secretaries changing, but the methods used to process the information that is being brought into the world of business are also challenging the secretaries of today. These factors are documented by both Canadian and American writers (Hume, 1989; Kutie & Rhodes, 1986; Morrison & Morrison, 1989; Fruehling, 1989) in professional journals and texts and are the basis of many conference topics and much recent research in the area of secretarial training.

A report released jointly by the United States Departments of Labor, Education, and Commerce concludes that "the gap between what business needs and the qualifications of entry-level workers in technologically oriented workplaces is widening" (Morrison & Morrison, 1989, p. 3).

Through a satellite videoconference entitled "AMA's First Annual Secretaries' Briefing," the American Management Association (AMA) reported

> The old view of secretarial skills emphasizing typing, filing and shorthand is gone. These technical skills were supplemented in the past with "discretionary" ones such as interpersonal skills, which the secretary needed in order to deal effectively with other people in the organizations. . . . Now many other "discretionary" skills are required, including decision-making, the ability to solve problems, handle information, perform public relations duties, organizational skills, and always, the ability to exercise good judgment. (AMA, 1989, p. 13)

History of Word/Information Processing

The word processing concept has been in existence since man's earliest attempts to capture the word in recorded form. Before the Industrial Revolution, secretarial and clerical activity was confined largely to family members (mainly wives and children) as manufacturing was done by hand in home workshops as a cottage industry. At the turn of the sixteenth century and the advent of the Industrial Revolution, manufacturing and commerce moved away from the home, creating a need for secretarial/clerical personnel in large numbers to keep accounts and to answer the increasing amount of correspondence as the mechanization of industrial production increased information output. Information processing during this time was limited to the use of a quill pen, ink pot, and parchment paper. Most office positions were held by men as women, for the most part, were not educated and were confined to domestic services. The male secretary was considered to be an understudy for the executive and often was the successor in managing the business; therefore, the secretarial position during this time was considered important and prestigious (Kutie & Rhodes, 1986, pp. 4-5).

The late nineteenth and early twentieth centuries witnessed the invention of the typewriter and the telephone, which were followed by the appearance of duplicating equipment and calculating machines--and the beginning of the mechanized office. With the phenomenal growth of industrial and financial institutions during the early 1920s, an even greater number of typing, stenographic, and secretarial positions came into existence. It became necessary to train women, as well as a few men, to take shorthand and to type, first in private business schools and then in public secondary and post-secondary institutions, so that they could fill these positions. As new technology served the requirements of the business office, the traditional secretarial role evolved.

As secretarial positions began to be filled predominantly by women, the prestige of the secretarial role faded quickly. Women who worked were not highly respected for their education and efforts, and were considered mostly temporary workers who would leave the work force once they married (Kutie & Rhodes, 1986, p. 5). During the first half of the twentieth century, the ratio of male to female office workers was reversed--from a field of employment dominated by men, the secretarial and clerical office positions became staffed almost entirely by women. Secretarial work became a supportive rather than an administrative type of position with decreased pay and little opportunity for independent promotion. The prestige of the secretary's position paralleled that of the managerial level of the associated "boss" and advancement came generally when the boss got promoted.

During the first half of 1900s, the introduction of electrically-operated equipment enhanced the speed, quality, and quantity of office paperwork. The first International Business Machines (IBM) electric typewriter appeared in 1934 and the Selectric IBM with its rotating ball element and the automatic key for element return technology appeared in 1961. The photocopy machine was a significant advancement in duplicating technology at that time, also. Generally, however, the manner of performing office activities and the structure of the office remained fairly constant during this time.

In the 1950s, the mainframe computer changed how office tasks relating to accounting and bookkeeping were performed. With this computer, these activities became automated and many traditional, routine clerical tasks were eliminated. Data processing, as many clerical positions were referred to, had little impact on the secretarial segment of office workers, though. In the 1960s, automated information processing concepts were introduced into the office and then the role of the secretary began to change. The manner in which office tasks were accomplished had been altered. Management began to recognize the importance of secretarial tasks from the standpoint of not only costs but also the value of information itself for decision-making purposes.

The major technological change which impacted on the system of information processing was the development of automated word processing. The concept of automated word processing began in 1964 when IBM introduced the automated typewriter and text-editing systems on the Magnetic Tape Selectric Typewriter (MT/ST). This piece of office equipment was basically an automatic repetitive typewriter that recorded information magnetically on a tape. With the MT/ST it was possible for a secretary to store various documents on tape and access them as the need arose. The magnetic tape could be corrected, erased, and reused. The ability to store documents meant that the operator could edit and re-use material that had previously been keyboarded and stored on tapes, thus saving valuable re-typing time. These machines represented a giant step in the development of word processors. This electronic concept was shortly expanded to a dual-tape machine which permitted the secretary to make extensive revisions to the copy and transfer the good parts of the copy onto a new tape.

In 1969 IBM produced the Magnetic Card Selectric Typewriter (MC/ST) with the same magnetic coating applied to cards which were designed to hold one page of typing and allow room for revision (Powell, 1988). Larger amounts of electronic memory and automatic formatting followed shortly thereafter on advanced typewriters. These machines, however, were classified as "blind" word processors--the operator could not see the changes that were made until the document was printed.

In 1972 the first video display screen, or cathode ray tube, was introduced and connected to word processors. This enabled the typist to see the words on a screen before they were imprinted on paper. This visual text could be modified by means of text-editing features such as strikeover, insert, and delete commands, and be made letter-perfect before committing the text to paper (Stultz, 1982). This allowed for unlimited corrections and changes and made other tasks such as numbering pages, setting margins, centering titles, highlighting passages, and dividing copy into multiple columns almost effortless.

As early as 1964, IBM was the first to use the term "word processing" to describe all automated equipment used in the preparation of printed documents. A word processing system could be the configuration of a basic stand-alone system, a shared-logic system, or a distributed system.

Stand-alone word processing systems contain a number of basic components that include a terminal, a processing unit, internal storage devices, and a printer, which together allow the system to function as a single entity.

A shared-logic word processing system possesses a central processing unit (CPU) in which all intelligence or logic is contained. The individual components of terminals, storage, and printers are able to operate at a physical distance from the CPU but are unable to operate or function without it. Each unit functions only by sharing the logic or intelligence contained in the central processing unit. If the communication link between the individual stations and the CPU are severed, the station ceases to function.

A distributed word processing system allows stand-alone and/or shared logic systems to share intelligence and resources to form one large system where each individual system is capable of operating independently from the other, while allowing the intelligence to be distributed throughout the overall system. This type of system allows for the component parts to be physically located anywhere in the world and yet be connected to a central intelligence.

Word processing technology divided the function of the secretary into two discrete sectors--the administrative support secretary and the correspondence secretary. An administrative support secretary is one who completes administrative and management support tasks, such as handling the mail, managing data, greeting callers and visitors, making travel arrangements, scheduling calendars, researching files, and preparing reports for managers and executives. This secretary should possess an ability to handle the supervisory duties and responsibilities expected of an administrative assistant to middle and upper management. A correspondence secretary is one who types, transcribes, formats, edits, and proofreads documents. This secretary may also be responsible for photocopying and for records management duties. This position requires superior keyboarding, editing, and proofreading skills and the ability to organize the workflow, set work priorities, and think creatively when planning formats and following directions (Morrison, 1985, p. 59).

Structure of the Automated Office

The structure of an organization's automated information processing system depends on the size of the company and the specific needs of its administration. This structure can be a centralized, a decentralized, or an integrated system.

In the centralized information processing system, one word processing center is set up to handle the production of correspondence by "pools" of correspondence secretaries. This frees administrative secretaries from the menial task of typing most routine correspondence to handle more administrative duties for their employers. Administrative support secretaries are assigned to workstations throughout the organization under this system. In the decentralized system, a number of word processing centers are located throughout the organization, close to the departments they serve. The integrated design follows the traditional office structure but with automated information processing equipment at many, if not all, secretarial workstations. Companies with business offices soon realized the benefits to be accrued from an integrated multifunction system and viewed all the office functions as part of the information processing cycle. This cycle included the creation, the reproduction, the utilization, the storage, the retrieval, and the disposal of records. The information processing system became an "arrangement of elements (people, equipment, information, procedures) organized in a particular manner to carry out the activity involved in the document cycle" (Powell, 1988, p. 16)--the modern concept of information processing as it is known today.

> The revolutionary change of the electronic computer fundamentally altered the operations of, and the personnel relationships in, the business office.
>
> Among other changes, tomorrow's office will see tasks traditionally performed at managerial levels being done at nonmanagerial or secretarial levels. At the same time, management level personnel, using the same computerized tools, will be doing tasks previously performed only at non-management levels: working at keyboards to develop preliminary drafts, searching for and retrieving information electronically, sending information via electronic mail. (Fruehling, 1989, p. 22)

Multi-Function Systems

One of the most important components of the day-to-day operation of an office is the organization, documentation, and control of data. Computer manufacturers saw the benefits of merging word processing technology with computer technology to develop a system on which a variety of functions could be performed. The broad-based functions for which computers have been most widely used in office automation are data processing, spreadsheet accounting, word processing, and graphics.

Software packages which assist in recording, editing, and assembling documents are word processing packages. There is a wide variety of word processing software packages available today, such as Wordstar, Word Perfect, and Displaywrite 4.

Application packages that assist in organizing, manipulating, and recording data in a variety of ways include electronic spreadsheets, database management systems, and graphics packages. The integration of software capabilities to computer systems in the environment of the modern office combines these functions, previously carried out by various office personnel under separate systems, into one integrated multi-function system. Application software packages may be purchased and used as stand-alone packages or may be purchased as one combined integrated software package. Examples of integrated software packages include Framework, Symphony, Jazz, and Enable (Hume, 1989).

In describing this transition, Frueling (1989) wrote the following:

> The first computers or software could perform but one of these (automated) functions. A person

> needing to do two or more of these tasks had to be able to operate two or more computer systems. Few people had the time or the inclination, consequently, people were trained as data processors or word processors or "spreadsheeters" (accountants/bookkeepers) exclusively.
>
> Essentially, the first computer software reflected not only its own limitations but the fragmentation of jobs and functions that had developed over the decades in the non-electronic office. Today's state-of-the-art software and powerful computers combine disparate functions in one system or piece of software. (pp. 22-23)

Impact on Business/Office Education Programs

Automated information processing has allowed businesses to move from slow and inefficient methods of processing, storing, and using data to faster, more efficient methods. The result has been a more accessible data bank of information that has the capability of increasing productivity and allowing managers to make better business decisions. This same system has impacted on vocational schools and the office/ business education delivery system with a force similar to that which it has had on the business world (Gary, Callahan, & Lanoue, 1985, p. 28).

Information Processing is "an umbrella term covering the automated processing of all forms of information--numeric and word data, voice and image/graphics" (Hibler & Fry, 1985, p. 3). The Policies Commission for Business and Economic Education (1982) defines information processing as "a collection of word and data processing equipment, procedures, software, data, and people that integrates the subsystems of the organization and provides information for the user" (p. 12). The Commission concludes that information is output for decision making.

With these definitions in mind, perhaps the greatest challenge facing business/office education educators is to develop an instructional delivery system that reflects the rapidly changing technology and meets the challenge of interpreting information processing and its impact on individuals both on the job and at home.

With the widespread acceptance and use of information processing systems in all types of businesses across the country, colleges have to provide education and training to three divergent groups. The three groups of workers typically found in information processing occupations in today's offices include:

> (1) young people entering the work force as their first full-time employment experience and who have received formal related occupational education for these positions; (2) older workers who now find the information processing field a viable career alternative; included in this category are persons, commonly referred to as "adult reentry," who have returned to school later in life to acquire new job skills; and (3) people already employed in offices who have been processing information in the traditional manner and are now moving into automated office structures. (Meggison, 1985, p. 25)

The philosophy of most vocational schools is to train for personal goal attainment and for job placement. This philosophy may have encompassed initial job placement in the past and may have included job placement for entrance at a particular level of the job skill hierarchy. However, with the change in technological advancements and with the diversification of the job market, it is now time for vocational schools to rethink their basic philosophy behind the offering of courses in connection with personnel trends (Marchand, 1985, p. 44). Office/business education programs in vocational schools and colleges should provide the business community with training to upgrade the skills of those already employed and give new workers salable skills in current information processing technology.

> The underlying purposes of vocational education are to provide instructional programs which prepare the individual for specific areas of occupational life and to upgrade and increase technical knowledge and skills of those presently employed. The programs in vocational schools are not intended to take the place of a general academic education but to supplement and enhance one's total education. Business education offers the student an opportunity to acquire new skills and upgrade present skills in information processing related to secretarial, clerical, accounting, data processing, and other disciplines in business education. (Gary, Callahan & Lanoue, 1985, p. 28)

The changing office environment has brought about a period of uncertainty to those responsible for training and has led to intensive evaluation, projection, planning, and revision of current office education programs. With the development of faster, more versatile computers and electronic mail systems, the scope of services performed by office personnel has widened greatly (Powell, 1988). Powell sees these changes as challenges to post-secondary educators to provide programs which meet the changing needs of business.

On this issue this author wrote:

> The major challenge confronting college and university educators is to consider the ways in which the changing office environment should affect business education programs, their content, and the students enrolled in these programs. Programs need to be developed for the future that will not only meet the needs of the students in a cost-effective manner but will also encompass the expanding and changing needs of business. (pp. 5-7)

Word processing is usually based in user departments and is marginal to information processing operations. Word processing operators use electronic text editing equipment to produce letters, reports, and other documents. One of the results that Powell (1988) found from her research was "students entering word processing positions need word processing competencies. Business educators must be aware of these competencies considered critical by employers for entry-level word processing employees to succeed on the job" (p. 1).

A statement of the Policies Commission for Business and Economic Education (1989) places emphasis on change as well as on the new basics that educators should be responsible for: "All educational leaders and students must develop an acceptance of change and a commitment to the 'new' basics: technological skills, decision-making and problem-solving skills, and related employability skills" (p. 5).

Lambrecht (1989), a professor of business education at the University of Minnesota, found that instructors of secretarial classes see computer applications too narrowly and that "students will be shortchanged if they are not taught how to use software on their own as independent professionals" (p. 26). This researcher stressed the need to teach information systems to secretarial students that focus on the office support and end-user computing facets which involve using the major types of computing software: "word processing, accounting, spreadsheet, database, business graphics, telecommunications, and desktop publishing" (p. 26). Lambrecht took the position that "information literacy"--the ability to identify the type of problem encountered and to select the appropriate tool for the solution--should be an important component of secretarial studies.

Fruehling (1989), a business education educator and widely-published author in business/office education, supports the view of Lambrecht and encourages educational institutions to keep abreast of technological advances and to train future employees to work in the environment of integrated systems.

It is evident from what appears in the literature that the microcomputer has become the mainstay of today's office. It is also evident from the literature that the skills and knowledge of the secretary be diverse to the extent of using all information processing functions on this equipment. The only skill emphasized for entry-level secretaries by the participants in Jacobson's (1986) study who were employers, however, was that secretaries acquire skills in word processing. The participants of that study agreed that the system used to train the secretary was not important because word processing skills and knowledges were transferable. These participants indicated that "they have a high demand for operators with training on the IBM PC or one of its clones with Wordstar or WordPerfect software" (Jacobson, 1986, p. 13).

The company supervisors interviewed by Nellermoe (1989) reported that

> individuals who expect to obtain positions in word processing centers must possess strengths in the basic elements which are essential for the work position. A strong keystroking ability of 60 gross words per minute or more is essential; processing documents in a neat, error-free manner is imperative; a strong English background is a prime consideration for employment; evidence of good thinking skills must be shown; and being a well-informed contributing partner in the business is an important career element. (p. 15)

The Policies Commission for Business and Economic Education (1989) emphasizes that

> students must be prepared to deal effectively with expanding technologies under the leadership of up-to-date educators. For our educational system to reflect the emerging technologies and 'new' basics, it is necessary for educational leaders and students to be active participants in the change process. (p. 6)

According to Persons (1986), technological developments in office automation have changed the traditional office structure and this change challenges the business educator to know what to implement in the current office education curriculum. These educators are encouraged to go out in their respective areas and complete a needs assessment to identify these required competencies. Related literature and the findings of relevant research studies also help to identify these competencies.

Although these technological developments require flexibility and upgrading in the curriculum, Persons found that it is still very necessary to teach the fundamental basic skills of listening, speaking, reading, writing, and proofreading. "The business educator has a challenge to provide the student with salable skills both for current and future employment" (Persons, 1986, p. 60). According to the results of Persons' study, word processing training could be improved with more detailed vendor training and follow-up, more teacher/student contact, more direct hands-on experience, exposure through seminars and field trips, and work experience programs.

The myriad of skills, knowledges, and demands of the modern office has put considerable pressure on secretarial (office education) training programs to produce highly qualified graduates. Morrison and Morrison (1989) emphasize this fact and in the future they foresee a division in society between adequately trained personnel and those who are not adequately trained when they wrote

> the higher skilled jobs typically found in a high-tech marketplace will continue to go to those highly educated while the lower skilled jobs will be replaced by robots and other technical equipment since there is not a sufficient pool of workers available to perform such functions. (p. 4)

This causes business/office education educators to question whether a one-year office education program can fulfill the demands of the office of the '90s and into the 21st Century.

Luke (1989) cautions that too much emphasis is being placed on office automation technology while traditional office procedures content is being overlooked by those responsible for training office personnel. Employers still want people who have the skills that are traditionally included in the content of an office education course as well as the skills that are necessary to work in an automated office. When planning course content and teaching methods, business/office education instructors must carefully consider the entire spectrum of competencies. "Work-related skills employers demand include good basic skills, good communication skills, and good human relations skills" (Luke, 1989, p. 11). Although there is limited time in which to teach everything that an office support person needs to know, Luke continues by saying "as educators, we must remember that people who learn to read and think can learn independently; people who learn to push buttons are dependent on someone to show the way" (p. 12)..

Greenan and Amick (1986) place emphasis on office employees having good "generalizable skills" (American term for transferable skills) which enables the workers to adapt to many different kinds of jobs and reduces the amount of retraining required. "Generalizable skills allow workers to expand their perceptions of control over their lives and work environments" (p. 25). This study reveals that interpersonal skills are particularly generalizable and that the lack of positive attitudes and good interpersonal skills accounts for more job loss than the lack of technical or job-specific skills. Interpersonal skills are especially important to entry-level workers adjusting to a new job. "New employees need co-workers as a primary source of information and assistance. Consequently, it is very important to get along on the job" (Greenan & Amick, 1986, p. 26).

Curchack (1989) is an advocate who supports the concept that qualified secretaries should be the product of two-year training programs. Today's office employees are expected to be proficient with all communication requirements, be efficient with numerous correspondence, be knowledgeable about various word processing programs so that expensive equipment can be utilized most economically and productively, and be prepared for all the complexities of information processing as well as interpersonal office relationships. Office managers who hire secretaries compete for the successful graduates of the two-year college secretarial programs. (Curchack, 1989)

Meggison (1985) reports that two-year colleges in America represent the source of diversified business education experiences to many people and has allowed many individuals to pursue formal education beyond high school that would otherwise have been unavailable to them.

> In many two-year colleges, the great majority of students are enrolled in business and office education programs that are preparing them to transfer to baccalaureate institutions or to enter the job market armed with specific occupational skills. The two-year college, since it generally serves a specific geographic area, also provides both formal and informal educational experiences to various continuing education populations. (Meggison, 1985, p. 25)

According to Bodnarchuk (1990), Administrator of Anderson Lodge at Yorkton, today's office worker (formerly known as a secretary) needs to be familiar with various applications on the computer. The worker should be comfortable with advanced word processing functions, not just introductory or basic functions. Also, some basic knowledge of databases and spreadsheets are definite assets for entry-level employees. These should be part of office education programs which train office workers for various positions. Most office positions today involve the use of computers for a variety of functions--mostly word processing, database management, spreadsheets, graphics--and employers today expect these workers to be somewhat familiar with these concepts. If these competencies are not included in a basic Office Education course, the students should be encouraged to acquire these competencies through adult extension classes (Personal interview, October 1990).

In slight contrast to the opinion of Bodnarchuk, Hudye (1990), Administrator at the Parkland Regional College, feels that although it is to the student's advantage to have formal training with various computer applications in office education programs, a conscientious office worker could pick up this knowledge on the job or take the initiative to learn these computer applications, such as database management and spreadsheet accounting, at night classes through adult education. Hudye states, however, that it is extremely important that the student have a working knowledge of one popular word processing program such as WordPerfect (Personal interview, October, 1990).

Office Education Program in Yorkton, Saskatchewan

Adult education in Saskatchewan has evolved through a number of phases in response to social, economic, and technological conditions. The majority of the working class people nearing the turn of the 20th Century are in a mid-career bracket. People in this bracket were placed there as a result of prior training well before the impact of the age of the new technology of the office was known. As the economy of the province restructures, the jobs of the adult worker could be at risk, and without retraining, their employability may diminish. Upgrading and retraining of these employees becomes a major new priority. "Current estimates suggest that an employee may have to be retrained as many as five times in a working career" (Saskatchewan Education, 1987, p. 4).

Office Education programs are extremely important to business and the retraining of the adult learner. In Saskatchewan many post-secondary or adult students receive their training through a post-secondary education program such as the one offered at Yorkton through the Saskatchewan Institute of Applied Science and Technology (SIAST), Wascana Campus, Regina.

SIAST is a post-secondary institute with four main campuses across Saskatchewan: Kelsey at Saskatoon, Palliser at Moose Jaw, Wascana at Regina, and Woodland at Prince Albert. MAP 1 on page 46 shows the location of these campuses across the province.

SIAST coordinates province-wide delivery of adult education, technical training and retraining of adults in both urban centers and in rural communities. Through cooperative arrangements with Saskatchewan's Regional Colleges, SIAST works with employers to bring training to the student, if that is what is needed. The Institute provides a variety of instructional processes and program delivery methods to accommodate those living in remote areas of the province. These methods include distance delivery through satellite and fibre optic transmission, computer conferencing and teleconferencing, correspondence courses, computer-assisted self-directed study, travelling instructors, and "electronic classrooms" through the Saskatchewan Communications Network (SCN).

Delivery of programs is done through competency-based education, cooperative education, credit and non-credit programs, day-release programs, modular programming, work

MAP 1: LOCATIONS OF SIAST CAMPUSES

NOTE: MAP 1 has been taken out due to copyright restrictions.

TAKEN FROM: SIAST Calendar, 1990-91, p. iv.

experience programs, part-time programs, and traditional semester programs. Programs operate during both traditional and non-traditional hours. These might include: short seminars, seminars in series, training in the classroom or field settings, or training during evenings, weekends, noon hours or at times dictated by the nature of the program (SIAST Calendar, 1991-92).

One adult education program which was in place was the traditional secretarial training program offering courses related to basic secretarial skills such as typing, shorthand, and office procedures. With the widening scope of skills and technologies associated with office positions in the last decade of the twentieth century--word processing, graphics, and database management--educational institutes in Saskatchewan elected to rename the program from Secretarial Science to Office Education to accommodate the new course offerings and to change the image of the stereotyped "secretary." The Office Education Program is designed to prepare students for administrative assistant positions which demand a higher degree of decision-making skills and self-direction as the employee works closer with management and has access to a wide base of knowledge through technology (Telephone Interview, Greenough, 1991).

The SIAST Office Education Program at the Yorkton Regional High School in Yorkton is a full-time competency-based program offered during traditional hours in a traditional classroom setting. This ten month post-secondary education program is offered through Parkland Regional College and is affiliated with Wascana Campus in Regina. Students receive credit for completion of any number of modules in the courses within the program which consist of Typing and Transcription, Word Processing, Grammar/Punctuation, Business Communications, Office Procedures, Business Calculations, Accounting, Interpersonal Communications, Model Office, and Work Experience. Upon mastery of all of the required modules plus practical work experience in one of the local business offices, the student receives an Office Education Certificate from the Wascana Campus. Since the Office Education Program is competency-based, students may begin the program anytime during the ten-month period of September to June, providing space is available, and complete the program at their own rate. Highly-motivated and prepared students may be able to complete this program in seven to eight months, while other students may require more than ten months if they have other responsibilities or are slower learners. Progress of all learners is closely monitored by the program instructors.

Enrollment in the SIAST Office Education Program at Yorkton is limited to 25 students. This meets the office employment demands of the city and surrounding area. Response to the program is very positive from both employers and students. The coordinators/facilitators of the program, in liaison with Wascana, Canada Employment and Immigration, and local employers, strive to keep the program current and relevant to meet the local employment needs of the community.

Office education instructors have an obligation to ensure that classroom instruction provided to the students includes both the skills and the technologies needed in modern business offices. Instructors must provide realistic experiences and up-to-date knowledge of how the modern office functions, as well as provide students with the opportunities to integrate this knowledge and to become prospective employees who are highly productive. The automated office requires far more of its workers than keyboarding or shorthand skills. The potential for advancement on the job is excellent for workers who possess the required job skills and who have good interpersonal skills. Industry needs the trained and the competent graduates of office education programs (Reese, 1988, p. 10).

The Saskatchewan business community has a collaborative relationship with SIAST to help identify the educational needs of their employees and to arrange with SIAST programs to fulfill these needs. Through courses that are offered in the SIAST system, the students develop skills and abilities which contribute not only to the long-term productivity and profitability of the student but to that of their employers.

Related Research

Powell (1988)

Powell completed the requirements for a doctoral degree at the University of Mississippi which include original research for the dissertation. The major purpose of Powell's study was to identify competencies required by word processing operators as determined by word processing managers, operators, and business educators in Arkansas. The significance of importance of each related competency was identified by group and contrasted with that of the other groups.

Basically, all groups considered the 30 listed competencies as "important," but the 37 business educators had the highest mean scores for over half of these competencies and they indicated higher academic standards for word processing competencies.

The competencies rated by all groups as "very important" for word processing operators to possess were: maintaining confidentiality, using correct grammar and punctuation, proofreading and editing, and good communication skills. The results of this study also determined that both the business education classroom and the job setting should be used as learning centers for entry-level competencies. The word processing operators expected to have some training given to them on the job.

The types of word processing equipment and software in current use in Arkansas at the time of the study, as well as anticipated changes in the next five years (1993), were identified. Microcomputers and memory typewriters were the most popular equipment used by the educators, while stand-alone word processors with a screen and on-line terminals were the most popular equipment used by the businesses surveyed. WordStar was the most popular word processing software package, Lotus 123 was the most popular spreadsheet package, and dBase was the most popular database management package used by both the educators and the business offices surveyed. Displaywrite word processing was also popular with the businesses.

The 32 managers in the population sample predicted an increase in the volume of work on word processing equipment, an increase in the variety of applicable tasks, and an increase in capabilities on word processing equipment. Managers concluded that business educators should be aware of the equipment in current use in their areas and that they should have the financial support from their respective institutions to use the same equipment in their classes. The word processing curriculum should reflect the practical skills and varied tasks required for successful employment as a word processing operator.

Powell's research was related to this study because it identified necessary equipment-related competencies which included typing skills, editing skills, formatting skills, communication skills, general business competencies, and knowledge for producing various correspondence and reports. Of significance was the type of equipment and software in use in Arkansas when the research was done and the projected changes in word processing equipment and employment which were anticipated by the participating businesses.

Persons (1986)

Persons completed research for a dissertation at the University of Massachusetts where she was registered in the doctoral program. Persons' research was relevant to the present study because it paralleled this study closely and the results of the Persons' study provided information relevant to the present research.

The purpose of Persons' study was to identify the skill requirements for entry-level word processing operators in business organizations in the Worcester, Massachusetts, area. The objective of this research was to assist business educators with planning curricula and to communicate with local business organizations so that future word processing applicants would be better qualified for entry-level employment in the Worcester area.

The word processing skill requirements were deduced from a three-page questionnaire which was completed by 30 word processing supervisors. The questionnaire asked participants to identify the skills and competencies required of word processing operators as well as the equipment, training, pre-employment testing, and the post-secondary education correlated with word processing. The questionnaire also asked information be supplied that was directed at other skills or knowledge which should be encouraged or taught to future word processing operators.

From the data collected, Persons concluded that skill improvement for word processing operators was required in grammar/punctuation, composing correspondence, proofreading, typing, math, telephone skills, general bookkeeping, decision making, problem solving, and interpersonal relationship skills. Approximately half of the organizations surveyed administered a pre-employment test and most (87%) indicated that a post-secondary education was valuable.

Shorthand was not required by 90% of the firms sampled and over half (61.5%) also indicated that liberal arts subjects were not required in the business education curricula.

Specific training on word processing equipment was not needed by 63.3% of the firms reporting, but comments for improving word processing operator training included having more one-to-one vendor training and follow-up, more hands-on experience, more teacher/student contact, more seminars and field trips, more real-life work training, better basic secretarial skills, and more stress on transcription skills.

Persons' study emphasizes the need to survey business offices at regular intervals in order to establish a communication link and to ensure that prospective word processing employees are taught the skills required in the marketplace. The rapid change in office technology necessitates that instruction be supplemented with audio-visuals, multi-media learning systems, visits to word processing centers, workshops, and human relationship skills training. The basic fundamental skills of listening, speaking, reading, writing, and proofreading remain a necessary part of business education.

Jacobson (1986)

Jacobson completed her research at the University of Alberta in partial fulfillment of a Master of Education degree program. The research conducted by Jacobson was relevant to this study because it identified employer expectations of the secretary who worked in an automated office. These expectations were directed at what equipment-related skills were needed, what communication skills were required, what educational background was required for job entry, and what human relations skills were also required.

From the employers interviewed, Jacobson found that "the PC on the secretary's desk has become a common item allowing her/him to do word processing, accounting, records processing, and spreadsheet functions" (p. 11). All participants in the study took the position that hands-on word processing experience is a must for secretarial positions. Jacobson quotes from Stoufer's research (1983) that "more and more companies are introducing computer-based equipment from the areas of word processing, data processing, micrographics and telecommunications into the office work environment and, as a result, the demands on the secretarial staff are changing" (p. 11).

Jacobson found that entry-level secretaries were lacking basic grammar skills, verbal and non-verbal communication skills, and proofreading skills. These same skills were found lacking by the researcher in a previous study conducted four years earlier in 1982. Jacobson found support for these data from similar research findings previously reported. The communication skills required by future secretaries not only implied written documents, but also referred to interpersonal or human relations skills. "Future secretaries must be provided with an opportunity to learn how to deal with various types of interpersonal situations that may arise" (p. 26).

From the employers interviewed, Jacobson (1986) concludes:

> Employers are exercising greater selectivity in choosing secretaries today. They demand superior preparation and performance in equipment-related skills, but they also demand individuals with both conceptual and human relations skills. Today's secretary needs intensive and broader managerial skills. Skills such as decision making, priority setting, supervision, personal relationships, and communications were all listed as essential for the individual who hopes to advance in a secretarial career. . . . Areas that need to be stressed and practiced in the educational environment are: interest in work, conscientious, flexible and positive attitude, team-work, ability to interpret written and oral instructions, self-motivation, ability to take constructive criticism of work, and demonstration of good judgement.
>
> Humanistic skills, interpersonal skills and positive attitude are viewed by employers as essential for anyone seeking employment. Therefore, it is the responsibility of all (author's) educators, not just those teaching future secretaries, to assist students in developing these skills. (p. 36)

The findings from Jacobson's study could be integrated with those of this research into a complete office education course which would prepare students to have those skills required of office employees in modern business offices.

Marchand (1985)

Examination of the master's theses and doctoral dissertations shelved in the H. T. Coutts Library, Faculty of Education, University of Alberta, included a master's thesis completed by Marchand (1985). An indepth analysis was made of this thesis because it was an Alberta study which compared entry level word processing enabling skills to first year work skills and was considered by the researcher to be highly significant to the present study.

In conducting this study, Marchand compared the entry level word processing enabling skills of graduates from four institutions in Alberta where word processing courses were offered to the adult learner. A comparison was made between the enabling skills acquired through course work and the word processing skills these individuals were using within one year of employment.

The research population consisted of 101 graduates who completed a word processing course at a non-university post-secondary institution that included an institute of technology or an Alberta vocational center and who met the following criteria: (1) had successfully completed at least 40 hours and not more than 120 hours of formal word processing training including both word processing concept theory and hands-on experience; (2) were employed as either a word processing operator or designated as an operator by the employing agency; and (3) were employed for a period of less than, but not more than one year after successfully completing formal word processing training. Eighty-two participants completed and returned a questionnaire which was a two-part instrument. Part A of the instrument identified demographic data from those involved in the investigation. Part B was a word processing skill checklist which included two columns. For each skill in each column a 5-point Likert scale was used for rating. Column 1 concentrated on skills used at the work site. Column 2 was a preparation check list to collect information on the word processing skills that were acquired through formal education. The checklist included 60 enabling word processing skills. The Likert scale used to identify the frequency of use on the work column included these selections: "very seldom," "seldom," "some," "frequently," and "very frequently." The discriminators used for the preparatory column were "very inadequate," "inadequate," "neither inadequate or adequate," "adequate," and "very adequate."

Of the 60 enabling skills identified on the work column, 28 (approximately one-half) were NOT being performed either "frequently" or "very frequently" by the participants in the Marchand study. These enabling skills were eliminated as content organizers so that instructional content could be better organized for word processing courses. Sixteen (approximately one-fourth) of the 60 enabling skills had NOT been rated either "adequate" or "very adequate" as far as training the respondents received. The same word processing competencies that received an "inadequate" preparation rating were also rated as "seldom" or "very seldom" on the work scale by the 82 word processing operators involved in the research.

A major finding of Marchand's research was that formal word processing preparation received by the graduates of these four institutions in Alberta exceeded the competency requirements for word processing operators in their first year of employment.

Summary

The evolution of electronic word processing in the late 1960s has had a dramatic effect on clerical office work. Like all new concepts, this change evolved slowly--and then accelerated dramatically! Resistance from the male-dominated office crumbled as businesses realized that the concept of the automatic typewriter and the concept of automated text processing was a way to improve the production of office communication. As this equipment decreased in cost, its appearance increased in business offices so that today electronic equipment with word processing capabilities is standard equipment on nearly every office worker's desk.

The electronic office has changed the concept of "secretarial" work in the modern office of the 1990s so that the title "secretary" is becoming redundant and is being replaced with a more appropriate title such as "administrative assistant." Automated information processing has made information available to all office personnel, not just to those personnel in management levels. Secretaries changed from typists to information handlers of the office workplace. Multi-function devices give them the tools to retrieve information, process it, and store it efficiently, properly, and quickly--and this is done in a cost-effective way.

Electronic office equipment has changed and enhanced the role and responsibilities of the clerical office worker. This change has necessitated a redefining and restructuring of the educational curriculum which prepares the worker for the modern office. The integration of word processing concepts into business education curricula was predicted in the early 1970s by several researchers such as Long (1974), Dolecheck (1973), and Ober (1972). These researchers were identified in Mackay's (1978) study. Both high school teachers and post-secondary business education educators were encouraged to study this new technology and to incorporate it into their curriculum so that their students would graduate with the required skills. Almost two decades later, educators are still being encouraged to stay abreast of the latest technological advances made in word processing. Not only has advancement with word processing been phenomenal, it is in a constant state of flux and diversification. This requires that the business/office education teacher be constantly updated.

Mackay (1978) defined word processing to be "the transformation of ideas and information into a readable form of communication through the management of procedures, equipment, and personnel." Jacobson (1986) defined word processing to be "a method of producing written communication at top speed, with the greatest accuracy, the least effort, and the lowest possible cost, through the combined use of proper procedures, automated equipment and trained personnel". The change in definition exemplifies the tremendous impact this technology has had on business education in the short period of time it has been in existence. Business/office education educators are faced with the problem of constantly revising the curriculum to prepare students for the ever-changing business office.

Because new skills are now being demanded which are different from those of the past, interviewers and human resource personnel need to be aware of these new skills required of office personnel and of the fact that today's work environment is drastically different from that of the past. "With the constant change in technological advancements, it is now time to rethink the basic philosophy behind offering word processing courses in connection with personnel trends" (Marchand, 1985, p. 44).

The time appears to be appropriate for educators of business/office education programs to collaborate with their counterparts in the business community to identify those skills, knowledges, and attitudes required in the offices of the 1990s and to incorporate these into quality educational programs. This is especially important for those who teach at the post-secondary level where the curriculum is specifically designed to produce qualified entry-level workers who will meet the requirements demanded in a modern office.

> The nineties promise great changes in the office; these changes must be met by innovative curricular changes in education. . . . Business educators need to recognize the impact of advanced office technology as it shapes the office of the future and need to make a contribution to current thinking about the office and its future direction. (Powell, 1988, p. 2)

CHAPTER III

Analysis of Data

Introduction

This chapter presents the data that were collected with the research instrument which was mailed or hand delivered to 27 word processing operators or supervisors. All 27 of these participants which constituted the population of this study returned the completed instrument. This represented a 100% rate of return.

Chapter I of this study indicated that the research instrument was a questionnaire in two parts. Part A was designed to collect demographic data, data to identify the word processing equipment and programs that were being used, data to identify word processing recruitment requirements, and recommendations or opinions from the word processing operators and supervisors for improving instruction in the field of word processing. Part B of the questionnaire was a word processing competency checklist which gathered information on those word processing competencies the participants performed at the work place. In responding to this checklist, the participant was asked to circle one of the five choices on a 5-point Likert scale which included these choices: "Very Seldom," "Seldom," "Occasionally," "Frequently," and "Very Frequently."

Interpreting Research Data

It will be recalled from Chapter I that initially data from the research instrument was to be coded by the researcher and key-punched by personnel from the Division of Educational Research Services, Faculty of Education, University of Alberta. Following an examination of the instrument and taking into consideration the small number of participants (27), and consultation with a specialist in Instrument Design, Department of Educational Psychology, University of Alberta, the decision was made that the time spent in coding would be more productively spent if percentages and frequencies were manually calculated. This procedure was followed. The collected data and their calculations and analysis is presented in two parts in this chapter. These data are presented in tabular form for ease of presentation and analysis. The totals in some of the tables may not equal 100% because of rounding.

PART A: DEMOGRAPHIC INFORMATION

Question 1: What is the approximate size of your company?

The first question in this part of the questionnaire asked the participants to identify the size of the company where they were employed. In Table 1 are data which show that of the 27 individuals involved in the study, 10 (37%) were employed in a company which employed between 10 to 25 employees; 8 (29.6%) with 26 to 50 employees; 5 (18.5%) with

51 to 100 employees; and 4 (14.8%) with over 100 employees. These data indicate that two-thirds (66.6%) of the companies represented in the study were considered to be relatively small with 10 to 50 employees. It will be recalled that companies with fewer that 10 employees were eliminated from the research.

Table 1

Size of Company

Size of Company	Frequency	Percent
Ten to 25 Employees	10	37.0
26 to 50	8	29.6
51 to 100	5	18.5
Over 100	4	14.8
Total	27	99.9

Question 2: How many employees do you have that require word processing competencies?

Question 2 (Table 2) summarizes the number of employees requiring word processing competencies in the various companies represented in the study. Of the 27 companies, 3 (11.1%) had only one word processing employee; 9 (33.3%) of the companies reported having 2 employees requiring word processing skill; 8 (29.6%) had 3 to 5 such employees; and 7 (25.9%) had over 5 employees who required word processing competencies (these ranged from "7" employees to "over 20" in number). These data indicate that nearly two-thirds (62.9%) of the represented companies had between 2 to 5 employees in their employ who were required to have word processing competencies. One-quarter or 25.9% of the companies reporting had over 5 word processing employees.

Table 2

Employees Requiring Word Processing Competencies

Number of Employees	Word Processing Competencies	
	Frequency	Percent
One	3	11.1
2	9	33.3
3 to 5	8	29.6
Over 5	7	25.9
Total	27	99.9

Question 3: Is word processing a requisite for the recruitment of employees in the positions identified in number 2 above?

The data in Table 3 (Question 3) identify whether word processing was a requisite for the recruitment of employees for the position identified in Question 2. Sixteen of the 27 participants (59.3%) indicated that word processing was a requisite for one to be employed with their company; 8 (29.6%) indicated that these competencies were not required; 3 (11.1%) were not sure about their company policy on this issue. In Table 3 are data which reveal that over half of the companies in this study (59.3%) identified word processing competencies as a requirement when recruiting employees for the positions which required word processing skills.

Table 3

Word Processing A Requisite for Recruitment

Recruitment	Word Processing Required	
	Frequency	Percent
Yes	16	59.3
No	8	29.6
Not Sure	3	11.1
Total	27	100.0

Question 4: What are the job titles in your company that require word processing competencies?

In Table 4 are data collected with Question 4 which identify the various job titles in the participating companies which require word processing competencies of their employees. A total of 77 job titles were given by those involved in the study. The most frequent job title used was "secretary" by 16 companies or 20.8%. Second most frequently used job title that required word processing competencies was "Administrative Assistant" (14 or 18.2%). Both Clerk-Typist and Receptionist were listed 11 times (14.3%); with Word Processing Operator 5 times (6.5%). The remaining 20 job titles included: Supervisor (2), Manager (2), Controller, Administrator, Executive Director, Accountant (2), Confidential Secretary, Support Workers, Steno/Dicta-Typist, Executive Assistant, Education Assistant, Front Desk Clerks, Copy Writers, News Reporters, Music Librarian, Health Records Technician, Computer Operator.

In analyzing these 20 job titles, the first 5 titles could be categorized as administrative employees, the next 6 titles could be classified as administrative assistants, the front desk clerks as receptionists and the computer operator as a word processing operator. From these data, however, it becomes evident that the job title used within a company is not a strong indicator which position requires word processing competencies. In recruiting for any of these positions, it should be made clear to the applicant that word processing competencies are required. It also becomes evident that word processing is required for various positions within a company framework in entry-level positions, in middle management positions, and in administration positions.

Table 4

Job Title Requiring Word Processing Competencies

Job Title	Word Processing Positions	
	Number	Percent
Word Processing Operator	5	6.5
Secretary	16	20.8
Clerk-Typist	11	14.3
Receptionist	11	14.3
Administrative Assistant	14	18.2
Other	20	26.0
Total	77	100.0

Question 5: What type of equipment does your company use for word processing? (Please indicate the NUMBER of stations for each in the blank at the LEFT and the NAME OF THE EQUIPMENT in the blank at the RIGHT.)

Question 5 asked the participants for two types of information: (1) to identify the type of equipment they used for word processing; as well as (2) provide the number of work stations where the equipment was used. Table 5 includes data which identify the types of office technology--electronic typewriters, word processors, microcomputers, plus other equipment--that were used for word processing by the companies involved in the study and the number of stations of each type of office technology they possessed. These data reveal that word processing was performed mostly on microcomputers (65 of 125 work stations or 52%). Electronic typewriters represent 22.4% of the equipment used for word processing, and dedicated word processors represent 8.8%. Other equipment used for word processing represent 16.8% of the total of 125 stations.

Table 5

Type of Office Technology Used for Word Processing

Office Technology	Work Stations	
	Frequency	Percent
(1) Electronic Typewriters	28	22.4
(2) Word Processors	11	8.8
(3) Microcomputers	65	52.0
(4) Other	21	16.8
Total	125	100.0

Information in Table 6 records the data for the second portion of Question 5 which show the trade name of the electronic typewriters used in the companies that participated in the investigation. Of the 28 electronic typewriters used, Sharp was used most frequently (10 stations or 35.7%); IBM was used at 9 work stations (32.1%). Other models that were used at work stations included Xerox, Nakajima, Panasonic, and Olympia.

Table 6

Name of Electronic Typewriters Used for Word Processing

Trade Name of Electronic Typewriter	Frequency	
	Number	Percent
Sharp	10	35.7
IBM	9	32.1
Xerox	3	10.9
Nakajima	2	7.1
Panasonic	2	7.1
Olympia	2	7.1
Total	28	99.8

In Table 7 are data which indicate that the most popular word processors used by the 27 companies who provided data for the study were various models manufactured by IBM. Of the 11 word processors identified, 8 (72.7%) were IBM. Two companies indicated they used Xerox Memorywriters for word processing and one participant said an Olytext 20 was used.

Table 7

Trade Name of Word Processor Used for Word Processing by Participating Companies

Trade Name of Word Processors	Frequency	
	Number	Percent
IBM (various types)	8	72.7
Xerox Memorywriter	2	18.2
Olytext 20	1	9.1
Total	11	100.0

Data collected with Question 5 which asked for the number and the name of the microcomputers used with word processing were used to organize Table 8. These data indicate that of 65 microcomputers used for word processing by the 27 participating companies, the most popular were either IBM or IBM compatibles (54 out of 65 machines or 83.1%). Six of the 65 or 9.2% were Tandy microcomputers; 3 (4.6%) were Laser; and one each were an Apple and a Duncan microcomputer.

Table 8

Trade Name of Microcomputers Used for Word Processing by Participating Companies

Trade Name of Microcomputer	Frequency	
	Number	Percent
IBM Compatibles	28	43.1
IBM	26	40.0
Tandy	6	9.2
Laser	3	4.6
Apple	1	1.5
Duncan	1	1.5
Total	65	99.9

In addition to the above microcomputers that were used as word processing equipment, there were other types of equipment that were used. These included: 18 Digital Minicomputers, 2 IBM Mainframe computers, and one Ford Mainframe computer. Table 9 illustrates these data.

Table 9

Other Types of Office Technology Used by Participants to Process Words

Office Technology	Frequency	
	Number	Percent
Digital Minicomputers	18	85.7
IBM Mainframe computer	2	9.5
Ford Mainframe computer	1	4.8
Total	21	100.0

Of the 125 pieces of word processing equipment presented in Tables 6, 7, 8, and 9 which were used in the 27 participating companies, 73 were either IBM models or IBM compatibles. This represented 58.4% of equipment that was used by personnel of the 27 companies involved in the research to process words.

Question 6: What software packages are your word processing operators required to operate? Please check all that apply and specify the name of the package in the blank to the right (WordPerfect, Lotus 123, etc.).

Accompanying this question was a list which asked the participant (1) to check the software package that was used by the word processing operator they employed, and (2) to specify the name of the software package.

The software packages used for word processing, spreadsheets, and database management are identified in Table 10. Data in Table 10 show that the most popular word processing package used by participants was WordPerfect--16 of 30 identified packages or 53.3% of those reporting used this package. The next package that was most frequently used was Displaywrite 4 with 3 respondents or 10.0%. Both packages are used on IBM or IBM compatible machines. First Choice was used by only 2 respondents (6.7%) and 9 other packages that were used by a single respondent included: Lex, Framework, PC Write, Appleworks, PC II, Easywriter, IBM Textpack 6, AS400, and Websters New World Writer.

The most popular Spreadsheet software package used by the 27 participating companies was Lotus 123 which had a frequency of 11 out of 23 or 47.8%. Microsoft and Supercalc 4 was used by 2 of the 23 respondents or 8.7%. The most popular spreadsheet programs were ones used on either IBM or IBM compatible machines. There were 8 other spreadsheet programs identified from the research. These included: QuatroPro, 20/20, E.S.S., Paradox, VP Planner, Internal System, PC II System, and ACCPAC.

D-Base III was identified as the most popular Database Management program used by those involved in the research. Five of 12 respondents or 41.7% indicated they used this program. Microsoft Works was used by 3 of 12 respondents or

25%. Both of these programs are IBM compatible. Four other database management programs, Paradox, PCII System, PC File, and PF File, were identified from the research findings.

Following Table 10 the graphics and desktop publishing packages used are listed. Since these packages were recorded only once each, they were not summarized in the table as no one package was preferred over another. There were no Communications packages used by those who participated in the study. In the "Other" category there were 5 software packages that were specific accounting packages which did not fit into any of the designated categories.

Table 10

Name of Software Package Word Processing Operators Used

Software Package	Frequency	
	Number	Percent
(1) Word Processing		
Word Perfect	16	53.3
Displaywrite 4	3	10.0
First Choice	2	6.7
Other	9	30.0
Total	30	100.0
(2) Spreadsheets		
Lotus 123	11	41.7
Microsoft	2	8.7
Supercalc 4	2	8.7
Other	8	34.8
Total	23	100.0
(3) Database Management		
D-Base III	5	41.7
Microsoft Works	3	25.0
Other	4	33.3
Total	12	100.0

(4) Graphics:

Seven various graphics packages identified (one of each) were: Supercalc 4, Lotus 123, Printshop, Timeline, Newsmaker, Painted, and Newsmaker.

(5) Communications:

No communications packages were identified.

(6) Desktop Publishing:

Two desktop publishing packages were identified; namely, Newsroom and Pagemaker.

(7) Other:

Five other various software packages named (one of each) were Quicken, Formtool, AccPac Plus, PC-Document Analyzer, MIG for Accounts.

Question 7: Does your company have a centralized word processing center?

Data collected with Question 7 identified how many of the 27 companies had a centralized word processing center in their organization. These data were used to organize Table 11 which illustrates that 16 of the 27 respondents or 59.3% indicated that they did not have a word processing center in their company. Ten participants (37%) indicated that they did have a word processing center, and one (3.7%) was not sure whether or not such a center existed in their company. From further analysis of the results of the study, the researcher found that 5 of the 10 respondents who indicated their company had a word processing center employed from 3 to 5 word processing operators; 4 employed only 2 such operators, and one respondent employed one word processing operator.

Table 11

Number of Participants with Centralized Word Processing Centers

Centralized Word Processing Center	Frequency	
	Number	Percent
Yes	10	37.0
No	16	59.3
Not sure	1	3.7
Total	27	100.0

Question 8: Approximately how many hours per week (on the average per operator) do operators spend using word processing competencies at your company?

Data found in Table 12 summarizes the information collected with Question 8. These data identify the average number of hours per week that word processing operators in the research devoted to using their competencies. It will be recalled that one of the criteria established for selecting participants for this study was that they had to use word processing competencies 2 hours per day for five days a week or a minimum of 10 hours per week. The first time category on the research instrument that participants could check was 10 to 20 hours per week. Twelve of the 27 respondents or 44.4% checked this category. Eleven or 40.7% indicated their word processing operators used their competencies between 21 to 30 hours per week. There were 4 respondents (14.8%) who checked that their staff used their word processing competencies from 31 to 40 hours per week. Considering a 40-hour work week, word processing skills were used on a regular basis by participants, with very few employees in the participating companies devoting their entire work week to word processing. It was an observation of the researcher that the increment for time for this question should have been established at 5 hours instead of 10 hours to identify with more exactness the number of hours that word processing was used by the participants.

Table 12

Hours Per Week Devoted to Word Processing by Participants

Word Processing Hours	Frequency	
	Number	Percent
10 - 20	12	44.4
21 - 30	11	40.7
31 - 40	4	14.8
Over 40	0	0.0
Total	27	99.9

Question 9: Are employment tests given on the computer when interviewing prospective employees for positions that require word processing competencies?

Question 9 was designed to determine whether or not respondents used any pre-employment tests on the computer at the time of recruitment for the positions where word processing competencies were involved. Data collected with this question were used to organize Table 13. In this table are data which show that 20 of the 27 participants (74.1%) indicated they did not use any type of pre-employment test for entry-level recruitment where word processing competencies were involved. Two (7.4%) participants indicated "Yes," their company used a pre-employment test. Five (18.5%) of the participants were not sure if such a test was administered. There is an indication from these data that word processing competencies were not used as a selection device when potential employees were recruited for office positions in the companies that participated in this study.

Table 13

Computer Pre-Employment Tests Used to Determine Word Processing Competencies of Applicants

Computer Pre-Employment Test Used	Frequency	
	Number	Percent
Yes	2	7.4
No	20	74.1
Not sure	5	18.5
Total	27	100.0

If the participant answered "Yes" to Question 9, they were to complete Questions 10, 11, and 12 which were:

Question 10: Do these employment tests include straight-copy timed keyboarding tests?

Question 11: What are the keyboarding speed/accuracy requirements for the tests in #10?

Question 12: What is the error allowance on the tests in #10?

One of the "Yes" respondents indicated that the employment tests were used "for proficiency and knowledge of the program--not speed and accuracy;" therefore, that respondent did not elect to answer Questions 10, 11, and 12. Only one respondent indicated that speed/accuracy tests were given to prospective employees who were applying for a position requiring word processing competencies. This respondent stated that the required keyboarding rate was 60 NWPM with an accuracy limit of 5 errors. No tables were drawn up for Questions 10, 11, and 12 because of the one response.

Question 13: In your opinion, should all office employees have word processing competencies for entry-level employment?

Table 14 summarizes the data collected with Question 13. These data show that 19 of the 27 respondents (70.4%) indicated "Yes" that word processing competencies were required for entry-level employment with their company or business. The remaining 8 respondents (29.6%) indicated that these competencies were not a requirement for employment. From these data it could be concluded that word processing competencies are considered to be an important asset for applicants to possess before seeking employment in the firms involved in the study. Cross referencing data in Table 14 with data in Table 4, it is evident that word processing skills are used in all occupational levels of a company hierarchy--in entry-level positions, in middle management, and in the administrative sector.

Table 14

Word Processing Competencies Required of Entry-Level Employees

Word Processing Competencies Required	Frequency	
	Number	Percent
Yes	19	70.4
No	8	29.6
Not sure	0	0.0
Total	27	100.0

Question 14: In your opinion, should a beginning word processing operator be able to operate various word processing software programs?

IF "YES," PLEASE IDENTIFY WHICH PROGRAMS:

Question 14 was a two-part question. The first part gave the respondent three choices: "Yes," "No," and "Not Sure." A "Yes" response required that the participant identify the programs that a beginning word processing operator should operate.

This question was a follow-up of Question 13. With Question 14 the researcher wanted to secure the opinions of participants whether a beginning word processing operator (no specified position) should be able to operate a variety of word processing software programs and, if so, which ones these should be. Table 15 includes data which show that 12 of the 27 respondents or 44.4% were of the opinion that beginning word processing operators should be able to operate a variety of programs. There were 11 participants (40.7%) who checked "No;" this meant that their beginning word processing operators did not have to possess the ability to use a variety of software. The remaining 4 (14.8%) were not sure about beginning word processors needing to work with a variety of software programs. The programs that were identified by the "Yes" respondents are included in Table 16.

Table 15

Ability to Use Various Software Programs

Ability to Use Various Programs	Frequency	
	Number	Percent
Yes	12	44.4
No	11	40.7
Not sure	4	14.8
Total	27	99.9

Table 16 contains data collected with the second part of Question 14. These data identify all the software programs that were suggested by the participants for beginning word processing operators to be able to operate. Of the 20 participants who answered, 8 identified WordPerfect 5.1 as the program that beginning word processing operators should be able to use. Lotus 123 was listed 5 times (25%); Microsoft Works, 3 times (15%); and Displaywrite, 2 times (10%). Programs listed only once were DBase and AccPac. One respondent stated that the program the operators should know "depended on the type of business." It was noted that although the programs that were identified were computer software programs requiring similar word processing competencies, WordPerfect 5.1 and Displaywrite were the only word processing software programs.

Table 16

Software Programs Beginning Word Processing Operators Should be Familiar With

Software Program	Frequency	
	Number	Percent
WordPerfect 5.1	8	40.0
Lotus 123	5	25.0
Microsoft Works	3	15.0
Displaywrite 1-4	2	10.0
D-Base III	1	5.0
AccPac	1	5.0
Total	20	100.0

Question 15: Please identify any related knowledge or skills that you feel entry-level word processing operators should have which may have been omitted in this questionnaire.

In responding to Question 15, five respondents indicated that all entry-level office employees should be familiar with basic DOS or basic computer knowledge. Two respondents indicated that typing (keyboarding) skills were necessary. Other responses included: word processing operators should be familiar with one basic program; they should be able to use electronic memory typewriters; they should have basic secretarial skills; and they should be able to get along with others.

PART B: WORD PROCESSING COMPETENCIES CHECKLIST

The Competency Checklist

The Word Processing Competencies Checklist that comprised Part B of the research instrument listed 60 word processing enabling skills placed under 12 general areas of competence that a skilled word processing operator could perform. The competencies identified were not machine specific but were those that could be performed by a word processing operator on any type or model of word processing equipment. Beside each word processing skill\was a 5-point Likert scale to gather information on the frequency of the use of each word processing competency that was actually performed at the work place. The 5-point Likert scale included these choices: "Very Seldom," "Seldom," "Occasionally," "Frequently," and "Very Frequently." In analyzing the questionnaires, it was found that a limited number of participants choose not to respond to all the 60 enabling skills listed. After questioning a number of these participants, it was found that because the participant had NEVER performed the particular competency, and because NEVER was not a choice included on the questionnaire, it was left blank. In retrospect this could be considered a weakness of this portion of the research instrument.

The Word Processing Competencies

The word processing enabling skills which appeared on the questionnaire were divided into twelve general areas of competence. These twelve general areas of competence were:

1. Set Up The System
2. Keyboard (Input) - I
3. Keyboard (Input) - II
4. Create Documents
5. Reformat Text
6. Minor Correcting and Proofing
7. Major Editing and Revising
8. Store and File Text
9. Recall and Retrieve Text
10. Print (Output) Text
11. Execute Special Features
12. Execute Other Specialized Functions

Each general area of competence contained an average of approximately 5 enabling skills for a total of 60 enabling skills under the 12 general areas of competence. Frequency counts and percentages were calculated for each enabling skill in each general area of competence. A separate table shows each general area of competence with frequencies and percentages for each enabling skill.

General Area of Competence - 1. SET UP THE SYSTEM

Enabling Skills:

1.1 Turn the machine on and off
1.2 Load or access system disk
1.3 Load or access work diskette or file
1.4 Initialize a disk

Of the four enabling skills involved in setting up the system, the enabling skills of "Turn the machine on and off" (16/27 or 59.3%), "Load or access system" (13/27 or 48.2%), and "Load or access word diskette or file" (16/27 or 59.3%) were done "Very Frequently" by the research participants. Twelve of the participants indicated that to "Initialize a diskette" was performed either "Frequently" or "Very Frequently" by them in their work. Most of the participants (15/27) performed "Initialize a diskette" either "Very Seldom," "Seldom," or "Occasionally." Data in support of the above can be found in Table 17.

Table 17

Enabling Skills Performed by Participants

General Area of Competence: 1. Set Up The System

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
1.1 Turn Machine On/Off	4 (14.8%)	0 (0%)	5 (7.4%)	5 (18.5%)	16 (59.3%)	27 (100%)
1.2 Load/Access System Disk	6 (22.2%)	1 (3.7%)	4 (14.8%)	3 (11.1%)	13 (48.1%)	27 (99.9%)
1.3 Load/Access Work Diskette or File	0 (0%)	2 (7.4%)	3 (11.1%)	6 (22.2%)	16 (59.2%)	27 (99.9%)
1.4 Initialize a Disk	7 (25.9%)	1 (3.7%)	7 (25.9%)	6 (22.2%)	6 (22.2%)	27 (99.9%)

General Area of Competence - 2. KEYBOARD (INPUT) - I

Enabling Skills:

2.1 Use alpha and numeric keys
2.2 Use code and function keys (underscoring, centering, etc.)
2.3 Use cursor or locator keys
2.4 Use special system keys
2.5 Use word wrap-around (on/off)
2.6 Decimal alignment

The frequency counts of competencies 2.1, 2.2, 2.3, 2.4, and 2.5 of KEYBOARD (INPUT) - I indicate that these competencies were "Very Frequently" performed by the participants as word processing operators. Decimal alignment was performed "Occasionally" by 11 of the 27 respondents (40.7%). These data are found in Table 18.

Table 18

Enabling Skills Performed by Participants

General Area of Competence: 2. Keyboard (Input) - I

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
2.1 Use Alpha and Numeric Keys	0 (0%)	0 (0%)	2 (7.4%)	2 (7.4%)	22 (81.5%)	26[1] (96.3%)
2.2 Use Code/ Function Keys	0 (0%)	1 (3.7%)	0 (0%)	4 (14.8%)	22 (81.5%)	27 (100%)
2.3 Use Cursor or Locator Keys	0 (0%)	0 (0%)	1 (3.7%)	3 (11.1%)	23 (85.2%)	27 (100%)
2.4 Use Special System Keys	1 (3.7%)	0 (0%)	8 (29.6%)	6 (22.2%)	10 (37.0%)	25[2] (92.5%)
2.5 Use Wordwrap On/Off	4 (14.8%)	3 (11.1%)	4 (14.8%)	3 (11.1%)	13 (48.1%)	27 (99.9%)
2.6 Use Decimal Alignment	4 (14.8%)	5 (18.5%)	11 (40.7%)	3 (11.1%)	4 (14.8%)	27 (99.9%)

[1] One participant (3.7%) did not provide this datum.
[2] Two participants (7.4%) did not provide these data.

General Area of Competence - 3. KEYBOARD (INPUT) - II

Enabling Skills:

3.1 Use headers and footers with automatic page numbering
3.2 Paginate
3.3 Use multi-columns
3.4 Footnoting
3.5 Use subscripts and superscripts

The highest frequency count of enabling skill 3.1 appears equally under "Very Seldom" and "Occasionally" indicating that "Headers and footers with automatic page numbering" are not used to any significant degree by the respondents in this study. Enabling skill 3.2 (Paginate) is done "Very Seldom" by

8 of the 27 respondents and "Frequently" by 7 of the respondents. When closely analyzed, 13 of the 27 respondents perform "Paginating" either "Frequently" or "Very Frequently" (48.1%) which makes this skill significant to word processing operators. "Using multi-columns" was performed "Occasionally" by 9 of the 27 respondents. "Footnoting" and "Using subscripts and superscripts" were performed "Very Seldom" at the work place by the 27 word processing operators who supplied these data. Data related to this general area of competence - KEYBOARD (INPUT) - II and its enabling skills are found in Table 19.

Table 19

Enabling Skills Performed by Participants

General Area of Competence: 3. Keyboard (Input) - II

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
3.1 Use Headers/ Footers with Automatic Page Numbering	8 (29.6%)	3 (11.1%)	8 (29.6%)	4 (14.8%)	4 (14.8%)	27 (99.9%)
3.2 Paginate	8 (29.6%)	1 (3.7%)	5 (18.5%)	7 (25.9%)	6 (22.2%)	27 (99.9%)
3.3 Use Multi-Columns	4 (14.8%)	4 (14.8%)	9 (33.3%)	6 (22.2%)	3 (11.1%)	26[1] (96.2%)
3.4 Footnoting	14 (51.8%)	5 (18.5%)	7 (25.9%)	0 (0%)	0 (0%)	26[1] (96.2%)
3.5 Use Super/ Subscripts	12 (44.4%)	7 (25.9%)	7 (25.9%)	0 (0%)	0 (0%)	26[1] (96.2%)

[1] One participant (3.7%) did not provide this datum.

General Area of Competence - 4. CREATE DOCUMENTS

Enabling Skills:

4.1 Format (setting tabs, margins, line spacing, pitch, etc.)
4.2 Name documents
4.3 Use prompts, mesages, and menus
4.4 Use stop codes

Of the four enabling skills for the general area of competence - CREATE DOCUMENTS, competencies 4.1, 4.2, and 4.3 were rated as being done "Very Frequently," while competency 4.4 (Use stop codes) was rated equally on the scale by those involved in the research as being done "Very Seldom" to "Very Frequently." See Table 20 for these data.

Table 20

Enabling Skills Performed by Participants

General Area of Competence: 4. Create Documents

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
4.1 Format	0 (0%)	0 (0%)	5 (18.5%)	9 (33.3%)	13 (48.1%)	27 (99.9%)
4.2 Name Documents	0 (0%)	0 (0%)	4 (14.8%)	5 (18.5%)	18 (66.7%)	27 (100%)
4.3 Use Prompts, Messages; Menus	0 (0%)	2 (7.4%)	3 (11.1%)	6 (22.2%)	16 (59.2%)	27 (99.9%)
4.4 Use Stop Codes	6 (22.2%)	5 (18.5%)	6 (22.2%)	5 (18.5%)	5 (18.5%)	27 (99.9%)

General Area of Competence - 5. REFORMAT TEXT

Enabling Skills:

5.1 Restructure margins, tabs, line spacing, pitch, etc.
5.2 Hyphenate (manual and automatic)
5.3 Repaginate
5.4 Justify

In Table 21 there are data which show the frequencies for the enabling skills for the general area of competence - REFORMAT TEXT - that were collected from the 27 word processing operators involved in the research. Of the four enabling skills, only competencies 5.1 and 5.4 were rated as being "Frequently" or "Very Frequently" performed by the participants. Enabling skills 5.2 and 5.3 were equally rated as being performed either "Very Seldom" or "Occasionally" by those involved in the study.

Table 21

Enabling Skills Performed by Participants

General Area of Competence: 5. Reformat Text

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
5.1 Restructure	1 (3.7%)	3 (11.1%)	7 (25.9%)	7 (25.9%)	9 (33.3%)	27 (99.9%)
5.2 Hyphenate	8 (29.6%)	4 (14.8%)	8 (29.6%)	3 (11.1%)	4 (14.8%)	27 (99.9%)
5.3 Repaginate	7 (25.9%)	6 (22.2%)	7 (14.8%)	4 (14.8%)	3 (11.1%)	27 (99.9%)
5.4 Justify	3 (11.1%)	6 (22.2%)	5 (18.5%)	5 (18.5%)	8 (29.6%)	27 (99.9%)

General Area of Competence - 6. MINOR CORRECTING AND PROOFING

Enabling Skills:

6.1 Delete, insert, and replace text
6.2 Correct characters and words while keyboarding
6.3 Scroll (horizontally and vertically to review text)
6.4 Change margins, tabs, line spacing, etc.

The responses of the participants to MINOR CORRECTING AND PROOFING general area of competence are presented in Table 22. All four enabling skills for this area of competence were done "Very Frequently" by the majority of the respondents.

Table 22

Enabling Skills Performed by Participants

General Area of Competence: 6. Minor Correcting and Proofing

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
6.1 Delete/Insert and Replace Text	0 (0%)	2 (7.4%)	5 (18.5%)	2 (7.4%)	18 (66.7%)	27 (100%)
6.2 Correct Characters/ Words While Keyboarding	1 (3.7%)	3 (11.1%)	2 (7.4%)	6 (22.2%)	15 (55.5%)	27 (99.9%)
6.3 Scroll	1 (3.7%)	3 (11.1%)	5 (18.5%)	2 (7.4%)	16 (59.2%)	27 (99.9%)
6.4 Change Margins/Tabs/ Line Spacing	2 (7.4%)	2 (7.4%)	6 (22.2%)	6 (22.2%)	11 (40.7%)	27 (99.9%)

General Area of Competence - 7. MAJOR EDITING AND REVISING

Enabling Skills:

7.1 Move blocks or columns of text
7.2 Delete, insert, replace blocks/columns of text
7.3 Use global search and replace
7.4 Use spelling verification

The general area of competence MAJOR EDITING AND REVISING includes four enabling skills in its band. Of these four enabling skills, 7.1, 7.2, and 7.4 were performed either "Frequently" or "Very Frequently" by the majority of the word processing operators who provided data for this study. The enabling skill 7.3, "Using global search and replace," was performed "Very Seldom" by 9 of the 27 respondents, while 6 performed this competency "Occasionally," indicating that this function was not performed to any significant extent by the participants in this study. Data in Table 23 summarizes these data.

Table 23

Enabling Skills Performed by Participants

General Area of Competence: 7. Major Editing and Revising

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
7.1 Moving Blocks or Columns	1 (3.7%)	4 (14.8%)	7 (25.9%)	7 (25.9%)	8 (29.6%)	27 (99.9%)
7.2 Delete/Insert or Replace Blocks or Columns	2 (7.4%)	1 (3.7%)	5 (18.5%)	8 (29.6%)	11 (40.7%)	27 (99.9%)
7.3 Global Search and Replace	9 (33.3%)	3 (11.1%)	6 (22.2%)	6 (22.2%)	2 (7.4%)	26[1] (96.2%)
7.4 Spelling Verification	4 (14.8%)	0 (0%)	5 (18.5%)	7 (25.9%)	10 (37.0%)	26[1] (96.2%)

[1] One participant (3.7%) did not provide this datum.

General Area of Competence - 8. STORE AND FILE TEXT

Enabling Skills:

8.1 Store more than one version of a document
8.2 Delete previous versions of documents
8.3 Set up files and maintain records
8.4 Copy file(s) or a part of a file

Of the four enabling skills that are involved to STORE AND FILE TEXT, only 8.3 was performed by participants either "Frequently" or "Very Frequently." The enabling skills 8.1, 8.2, and 8.4 were performed only "Occasionally" with 8.2 and 8.4 being performed "Frequently" and 8.1 being performed on a "Seldom" basis. These data are presented in Table 24.

Table 24

Enabling Skills Performed by Participants

General Area of Competence: 8. Store & File Text

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasion-ally	Fre-quently	Very Fre-quently	Total
8.1 Store More Than One Version of Document	4 (14.8%)	6 (22.2%)	10 (37.0%)	3 (11.1%)	4 (14.8%)	27 (99.9%)
8.2 Delete Previous Documents	2 (7.4%)	4 (14.8%)	10 (37.0%)	6 (22.2%)	4 (14.8%)	26[1] (96.2%)
8.3 Set Up and Maintain Files/Records	0 (0%)	1 (3.7%)	5 (18.5%)	11 (40.7%)	10 (37.0%)	27 (99.9%)
8.4 Copy Files or Part of File	1 (3.7%)	3 (11.1%)	11 (40.7%)	7 (25.9%)	5 (18.5%)	27 (99.9%)

[1] One participant (3.7%) did not provide this datum.

General Area of Competence - 9. RECALL AND RETRIEVE TEXT

Enabling Skills:

9.1 Use document index (directory)
9.2 Access stored text
9.3 Selectively display portions of stored text, such as a specific page
9.4 Use security codes

The enabling skills 9.1 and 9.2 under the general area of competence - RECALL AND RETRIEVE TEXT were performed "Very Frequently" by the majority of respondents in this study. Enabling skill 9.3 was performed "Occasionally" by 9 of the 27 respondents with a total of 10 of the 27 performing this competency "Frequently" or "Very Frequently." Enabling skill 9.4 (Use security codes) was performed "Very Seldom" by 12 of the research participants. These data are shown in Table 25.

Table 25

Enabling Skills Performed by Participants

General Area of Competence: 9. Recall/Retrieve Text

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
9.1 Use Document Index (DIR)	1 (3.7%)	1 (3.7%)	5 (18.5%)	4 (14.8%)	16 (59.2%)	27 (99.9%)
9.2 Access Stored Text	1 (3.7%)	1 (3.7%)	5 (18.5%)	3 (11.1%)	17 (62.9%)	27 (99.9%)
9.3 Selectively Display Portions of Stored Text	4 (14.8%)	4 (14.8%)	9 (33.3%)	3 (11.1%)	7 (25.9%)	27 (99.9%)
9.4 Use Security Codes	12 (44.4%)	4 (14.8%)	3 (11.1%)	1 (3.7%)	7 (25.9%)	27 (99.9%)

General Area of Competence - 10. PRINT (OUTPUT) TEXT

Enabling Skills:

10.1 Start/stop printer
10.2 Set up printer using menus or special print commands
10.3 Load paper
10.4 Print from screen or storage
10.5 Use print queues
10.6 Change ribbons or print wheels
10.7 Operate automatic sheet feeder

The general area of competence, PRINT (OUTPUT) TEXT contains seven enabling skills in its band. All of these enabling skills except 10.6 were performed on a "Very Frequently" basis by most of the word processing operators who were part of this study. Data in Table 26 give support to this statement. Enabling skill 10.6 was performed "Occasionally." To summarize, all of the enabling skills of this general area of competence are significant for performance by the respondents in this study.

Table 26

Enabling Skills Performed by Participants

General Area of Competence: 10. Print (Output) Text

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
10.1 Start/Stop Printer	2 (7.4%)	0 (0%)	2 (7.4%)	3 (11.1%)	20 (74.1%)	27 (100%)
10.2 Set Up Printer Using Menus or Special Print Commands	2 (7.4%)	2 (7.4%)	5 (18.5%)	6 (22.2%)	12 (44.4%)	27 (99.9%)
10.3 Load Paper	0 (0%)	1 (3.7%)	4 (14.8%)	4 (14.8%)	18 (66.7%)	27 (100%)
10.4 Print From Screen or Storage	1 (3.7%)	1 (3.7%)	2 (7.4%)	1 (3.7%)	22 (81.5%)	27 (100%)
10.5 Use Print Queues	2 (7.4%)	4 (14.8%)	6 (22.2%)	3 (11.1%)	8 (29.6%)	23[1] (85.1%)
10.6 Change Ribbons or Print Wheels	2 (7.4%)	4 (14.8%)	10 (37.0%)	4 (14.8%)	7 (25.9%)	27 (99.9%)
10.7 Operate Automatic Sheet Feeder	5 (18.5%)	3 (11.1%)	2 (7.4%)	5 (18.5%)	12 (44.4%)	27 (99.9%)

[1] Four participants (14.8%) did not provide these data.

General Area of Competence - 11. EXECUTE SPECIAL FEATURES

Enabling Skills:

11.1 Use forms
11.2 Use math or arithmetic
11.3 Sort and select (records/list processing)
11.4 Merge (form letters)
11.5 Assemble a document from a number of sources
11.6 Use communications features
11.7 Use the system dictionary
11.8 Use glossary, key stroke save, or other key stroke storage features

Of the eight enabling skills identified under the general area of competence - EXECUTE SPECIAL FEATURES, 11.7 was the only enabling skill performed "Very Frequently" by 10 of the 27 research participants (37%) and "Occasionally" by 7 of these participants which represented 25.9% of the research population. Enabling skills 11.1 and 11.2 were performed "Occasionally" by those involved in the study. Enabling skills 11.3 and 11.8 were performed "Occasionally," as was enabling skill 11.4. Both enabling skills 11.5 and 11.6 were performed either on a "Seldom" or "Very Seldom" basis. Table 27 reveals these data.

Table 27

Enabling Skills Performed by Participants

General Area of Competence: 11. Execute Special Features

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
11.1 Use Forms	3 (11.1%)	6 (22.2%)	8 (29.6%)	5 (18.5%)	4 (14.8%)	26[1] (96.2%)
11.2 Use Math or Arithmetic	3 (11.1%)	3 (11.1%)	11 (40.7%)	3 (11.1%)	6 (22.2%)	26[1] (96.2%)
11.3 Sort/Select (Records/List Processing)	4 (14.8%)	9 (33.3%)	8 (29.6%)	1 (3.7%)	4 (14.8%)	26[1] (96.2%)
11.4 Merge Form Letters	5 (18.5%)	3 (11.1%)	9 (33.3%)	6 (22.2%)	3 (11.1%)	26[1] (96.2%)
11.5 Assemble Document from A Number of Sources	10 (37.0%)	6 (22.2%)	4 (14.8%)	3 (11.1%)	4 (14.8%)	27 (99.9%)
11.6 Use Communications Features	11 (40.7%)	6 (22.2%)	4 (14.8%)	3 (11.1%)	3 (11.1%)	27 (99.9%)
11.7 Use System Dictionary	4 (14.8%)	3 (11.1%)	7 (25.9%)	2 (7.4%)	10 (37.0%)	26[1] (96.2%)
11.8 Use Glossary, Key Stroke Save or Key Stroke Storage	6 (22.2%)	4 (14.8%)	6 (22.2%)	5 (18.5%)	5 (18.5%)	26[1] (96.2%)

[1] One participant (3.7%) did not provide this datum.

General Area of Competence - 12. EXECUTE OTHER SPECIALIZED FUNCTIONS

Enabling Skills:

12.1 Use graphics
12.2 Use photocomposition equipment
12.3 Use typesetting equipment
12.4 Perform system trouble-shooting
12.5 Write special programs
12.6 Supervise other operators

The twelfth area of the word competency checklist included six enabling skills that made up the general area of competence - EXECUTE OTHER SPECIALIZED FUNCTIONS. Data collected in this section of the questionnaire were used to organize Table 28. These data show that all six enabling skills were "Very Seldom" done by the participants of this study at their work place. A significant number of participants did not respond to enabling skills 12.2, 12.3, 12.4, 12.5, and 12.6 which could indicate that these participants NEVER performed any of these five enabling skills. The basis of this analysis is concluded from the response received from two participants when asked why they had not chosen a selection on the given scale.

Table 28

Enabling Skills Performed by Participants

General Area of Competence: 12. Execute Other Specialized Functions

Enabling Skill	Performed by Participants					
	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Total
12.1 Use Graphics	13 (48.1%)	4 (14.8%)	6 (22.2%)	2 (7.4%)	1 (3.7%)	26[1] (96.2%)
12.2 Use Photo-Composition Equipment	17 (62.9%)	4 (14.8%)	0 (0%)	0 (0%)	1 (3.7%)	22[2] (81.4%)
12.3 Use Typesetting Equipment	16 (59.2%)	4 (14.8%)	1 (3.7%)	1 (3.7%)	1 (3.7%)	23[3] (85.1%)
12.4 Perform System Trouble Shooting	13 (48.1%)	5 (18.5%)	5 (18.5%)	0 (0%)	1 (3.7%)	24[4] (88.8%)
12.5 Write Special Programs	22 (81.5%)	1 (3.7%)	0 (0%)	0 (0%)	1 (3.7%)	24[4] (88.9%)
12.6 Supervise Other Operators	9 (33.3%)	5 (18.5%)	7 (25.9%)	1 (3.7%)	3 (11.1%)	25[5] (92.5%)

[1] One participant (3.7%) did not provide this datum.
[2] Five participants (18.5%) did not provide these data.
[3] Four participants (14.8%) did not provide these data.
[4] Three participants (11.1%) did not provide these data.
[5] Two participants (7.4%) did not provide these data.

CHAPTER IV

Summary, Findings, Conclusions, Recommendations and Observations Derived from The Study

Introduction

Chapter I of this thesis included a detailed outline of the research design and the methodology that was used to bring this study to its conclusion. Contents of Chapter I also contained the problem statement, the subproblems, the need and significance of the study, the research population and the procedure used in selection of the participants, the delimitations and limitations of the investigation, the research assumptions, the instrumentation and the instrument design, a description of the Pilot Study, operational definitions applicable to the research, and the methodology used to collect the data for analysis.

Chapter II is titled "Related Literature and Research" and is divided into two sections: related literature and related research.

In Chapter III data that were collected with the research instrument are analyzed. These data were presented in tabular and narrative form for ease of presentation and interpretation by the reader.

The final chapter of this report, Chapter IV, is divided into four related and integrated sections. The first section contains a summary of the research methodology; the second and third parts include the findings and conclusions and the recommendations from the research to those concerned with conducting research or designing curriculum for word processing courses. In the fourth section can be found observations made by the researcher while conducting the various stages of the investigation.

Summary

The concept of word processing or producing written communication has existed since man's earliest attempt at recording information. This concept has evolved through several technological stages to facilitate the phenomenal growth of producing written correspondence with more efficient and more economical methods. The electronic information age of the 1990s demands that reams of information be supplied immediately and accurately--and today's modern technology is meeting this demanding pace.

First the manual and then the electric typewriters developed in the first half of the Twentieth Century were important contributors to the production of information in the expanding field of office services. This equipment soon became archaic as automated electronic equipment emerged in the 1960s and 1970s, then flooded the market in the next decade, changing not only how written information was produced and stored but the whole structure of the office environment.

Business educators faced a tremendous challenge as they sought ways to keep the business education curriculum up to date and to replace old equipment with the new emerging technology. It became readily apparent that traditional methods and materials needed to be adjusted to keep pace with the changing office environment.

The Problem

The research problem and major purpose of this study was to determine the job word processing competencies that are required of office employees who are word processing operators in business offices within the service area of the city of Yorkton, Saskatchewan.

In support of this major problem, the following subproblems were formulated:

> To identify the employment positions that exist in business offices in the Yorkton area that require the employee to possess word processing competencies.
>
> To identify the types of word processing equipment and software in current use in business offices in the Yorkton area that require word processing competencies.
>
> To determine what job word processing competencies are required by those who fill word processing positions in business offices in an ex-urban area, as determined from the frequency of operation.
>
> To determine what the keyboarding speed and accuracy

recruitment requirements are for entry-level word processing operators in business offices in the Yorkton area.

Population and Selection of Participants

The population of the study consisted of 27 word processing operators or supervisors from business offices (companies) in the Yorkton area that employed a minimum of ten employees and that used electronic word processing equipment for processing information for an average of at least two hours a day for five days a week or ten hours a week.

To identify this population a list of businesses within a radius of 50 km of the city of Yorkton that employed at least ten employees was selected at random from a database provided by Brock and Associates. This list contained a total of 184 businesses. The researcher contacted every second business on the list (92 businesses) to determine which of these used word processing for an average of at least two hours a day or ten hours a week in their information processing systems. Of the 92 businesses contacted, 27 met the criteria set forth in this study and all 27 contacts at these businesses agreed to participate in the research. These 27 became the research population.

The following selection criteria were established to select the businesses as research participants:

Had to be located either in the city of Yorkton or within a radius of 50 km of the city.

Had to employ at least ten employees.

Had to use word processing competencies for an average of at least two hours a day or ten hours per week in their information processing systems.

The Research Instrument

The research instrument selected for use with this study was a two-part questionnaire. Part A of the questionnaire was used to collect demographic data that identified the size of the business, the positions in these businesses that required word processing competencies, the number of word processing positions within that business, the equipment and programs used for word processing functions, and the recruitment requirements for individuals who filled positions that required word processing competencies.

Part B of the questionnaire listed the general areas of word processing competencies that were not machine specific for the occupation of word processing operator and the enabling skills within each of these general areas. A 5-point Likert scale was used by the participants to rate each enabling skill. The choices offered the participants were: "Very Seldom," "Seldom," "Occasionally," "Frequently," and "Very Frequently."

The draft instrument was reviewed by a specialist in instrument design from the Department of Educational

Psychology, Faculty of Education, University of Alberta. From this review the suggested adjustments and revisions were made by this researcher to produce the questionnaire in its final form. The research instrument was then used in a Pilot Study.

The Pilot Study

The pilot study was conducted by the researcher with three word processing operators who met the criteria for selecting participants and who agreed to assist in this phase of the research. These individuals were not involved in the major study. The participants that were selected for the pilot study were readily available to the researcher and could readily identify any problems with the questionnaire. Each participant received a copy of the questionnaire and was asked to record the time it took for completion and to identify any questions or instructions that were ambiguous or poorly written. After completing the questionnaire, each participant was interviewed. From this interview it was determined that the questionnaire would take between 20 to 25 minutes to complete and that all questions and instructions were clear and specific. No further revisions were made to the research instrument.

Need for the Study

Word processing today is automatically identified with automated equipment and trained personnel, "producing written communication at top speed, with the greatest accuracy, the least effort, and the lowest possible cost" (Jacobson, 1986, p. 5). Curriculum planners and educators of business education, or office education as it has been renamed by several institutions, are still faced with the problem of constantly revising the curriculum to prepare students for the ever-changing business office.

> Changes should stem from communication with area business offices to determine competencies needed by the entry-level word processing operator. A needs assessment of the offices where the student seeks employment is the initial step preparatory to curriculum implementation. (Persons, 1986, p. 27)

The main purpose of this study was to determine the word processing needs of prospective office employees in business offices in the Yorkton area. This information could help the coordinators up-date the curriculum of the ten-month SIAST (Saskatchewan Institute of Applied Science and Technology) Office Education Program which is offered there.

Methodology

Following the Pilot Study of the questionnaire, this research instrument, together with a covering letter which included a deadline date, was either hand delivered or mailed to the 27 participants of the study. Self-addressed.stamped envelopes were also enclosed with the questionnaire packets that were mailed. The 21 hand-delivered questionnaires were all picked up by the researcher within four days' time and the 6 mailed questionnaires were all completed and returned within eight days' time. This represented a 100% rate of return;

consequently, a follow-up procedure was not necessary.

The data from the research instruments were calculated into frequencies and percentages by the researcher and presented in Chapter III of this study in tabular and narrative form. These frequencies and percentages were analyzed and findings of this study were formulated.

Related Research

The researcher conducted an information retrieval search of the ERIC database and a manual search of the standard indices for reporting the findings in educational research that investigated job word processing skills needed by employees employed as word processing operators. From this search a total of 35 citations (hits) were obtained from ERIC which included abstracts of journal articles, education reports, and doctoral dissertations. A review of these abstracts revealed that no research was reported that had been completed in Canada that investigated job word processing competencies. Two doctoral dissertations were completed in the United States--Persons (1986) in Worchester, Massachusetts, and Powell (1988) in Arkansas--which did investigate the word processing needs of business organizations in the respective areas.

The manual search of the theses and doctoral dissertations shelved in the H. T. Coutts Library, Faculty of Education, University of Alberta, produced two studies completed at the University of Alberta which were related to the current study. One study was by Marchand (1985) and one by Jacobson (1986). These studies and those of Persons and Powell were reported under Related Research in Chapter II of this study and are summarized in the following paragraphs.

The major purpose of Powell's study (1988) was to identify competencies required by word processing operators as determined by word processing managers, operators, and business educators in the state of Arkansas. The significance of importance of each related competency was identified per group and contrasted with that of the other groups. The competencies rated by all groups as "very important" for word processing operators to possess included: maintaining confidentiality, using correct grammar and punctuation, proofreading and editing, and good communication skills. The business educators had the highest mean scores for most of the competencies, which indicated higher academic standards were required by this group than the standards set by word processing managers and operators. Microcomputers and memory typewriters were the most popular equipment used by the educators, while stand-alone word processors were the most popular equipment used by the businesses surveyed. The most popular software packages used by both the educators and businesses were WordStar for word processing, Lotus 123 for spreadsheets, and DBase for database management. The managers in the population sample of Powell's study predicted an increase in the use of word processing equipment and an increase in the applicable tasks and competencies involved with word processing. Powell concluded that the word processing curriculum should reflect the practical skills and varied tasks required for employment with this office concept.

Persons' study (1986) was done to identify the skill requirements for entry-level word processing operators in business organizations in the Worcester, Massachusetts, area. The objective of this study was to assist business educators with planning curricula and to communicate with local business organizations so that future word processing applicants would be better qualified for entry-level employment in the Worcester area. From the data collected, Persons concluded that skill improvement for word processing operators was required in grammar/punctuation, composing correspondence, proofreading, typing, math, telephone skills, general bookkeeping, decision making, problem solving, and interpersonal relationship skills. Specific training on word processing equipment was not found necessary, but findings for improving word processor operator training included having more one-to-one vendor training and follow-up, more hands-on experience, more teacher/student contact, more seminars and field trips, more real-life work training, better basic secretarial skills, and more stress on transcription skills. Persons' study emphasized the need to survey business offices at regular intervals in order to establish a communication link and to ensure that prospective word processing employees are taught the skills required in the marketplace.

The research conducted by Jacobson (1986) identified employer expectations of the secretary who worked in an automated office. These expectations were directed at what equipment-related skills were needed, what communications skills were required, what educational background was required for job entry, and what human relations skills were required. From the employers interviewed, Jacobson found that humanistic and interpersonal skills were viewed as essential for anyone seeking employment. The general educational environment should stress that employees demonstrate an interest in work, a conscientious, flexible and positive attitude, teamwork ability, self-motivation, good judgement, an ability to interpret written and oral instructions, and an ability to take constructive criticism. The employers in Jacobson's study felt that today's secretary who hopes to advance in a secretarial career needed more intensive and broader managerial skills which included decision making, priority setting, supervision, personal relationships, and communications.

Marchand (1985) conducted a study in Alberta with graduates from four non-university post-secondary institutions which compared entry level word processing enabling skills to first year work skills used by these graduates. A comparison was made between the enabling skills acquired through course work and the word processing skills these individuals were using within one year of employment. Of the 60 word processing enabling skills identified in Marchand's study, approximately one-half (28) were NOT being performed either "frequently" or "very frequently" by the participants and were eliminated as required skills for the instructional content of word processing courses. Approximately one-quarter of the 60 enabling skills were rated as NOT having received either adequate or very adequate training by the respondents. The same word processing competencies that received inadequate preparation were also rated as seldomly used on the work scale by the 82 word processing operators involved in the research. Marchand concluded that formal word processing preparation received by the graduates of the four institutions in Alberta exceeded the competency requirements for word processing operators in their first year of employment.

Findings and Conclusions

Demographic Information - General

The results of this study provide information from 27 supervisors or operators who used word processing equipment at least two hours a day or ten hours a week and who were employed at businesses with at least ten employees in or within an area of a 50 km radius of the city of Yorkton. A list of the businesses participating in this study can be found in Appendix C on page 167.

According to the number of employees, the approximate sizes of the companies surveyed included 10 companies with 10 to 25 employees, 8 with 26 to 50 employees, 5 with 51 to 100 employees, and 4 with over 100 employees. Two-thirds (66.6%) of these companies employed between 10 and 50 employees. Companies of this size could be considered average for those represented in this study.

There were at least 117 word processing employees in the 27 businesses surveyed. An exact figure is not possible as one of the choices to a question on the questionnaire was "3 to 5" employees; the figure 117 reflects the lowest figure of this category. This averages approximately 4.3 employees who required word processing competencies for each business.

It was found that the operators at 12 of the 27 businesses (44.4%) spent between 10 and 20 hours working at word processing; at 11 of these businesses (40.7%) operators spent from 21 to 30 hours on word processing equipment, and 4 (14.8%) of the participating companies had employees working on word processing for 31 to 40 hours. The range of hours the employees worked with word processing equipment was from a minimum of 10 hours to a maximum of 40 hours.

According to the information provided, 10 of the 27 companies had a word processing center. From further analysis of the questionnaires, it was found that one of these companies had only one word processing operator, 4 had two word processing operators, and 5 companies had between 3 to 5 word processing operators. Of the remaining 17 companies that indicated they did not have a word processing center, 7 of these companies employed more than 5 employees who were required to have word processing competencies. From these results, this researcher assumed that either the participants misunderstood this question or that they were not familiar with the term "word processing center."

Of the 27 businesses included in the research, 16 indicated that word processing competencies were a requisite when personnel were recruited for the positions that required a knowledge of word processing. This represented 59.3% of the research population. Only two of the 27 businesses reported they administered a word processing test when interviewing personnel for these positions. One of these companies stated that the prospective employee's knowledge and proficiency with word processing were tested. The other company indicated that speed and accuracy tests were administered to the applicant. The speed requirement reported for these tests was 60 NWPM with 5 errors or less on a straight copy timing.

There were 70.4% of the participants who were of the opinion that all office employees should be familiar with word processing for entry-level employment. Participants were divided on the opinion of whether or not a beginning word processing operator should have the ability to operate a variety of word processing programs. Twelve of the 27 participants felt the entry-level employees should possess such skills, 11 did not, and 4 were unsure. The most popular software programs, in the opinion of 12 of the participants, were WordPerfect 5.1, Lotus 123, and Microsoft Works. Displaywrite, DBase and AccPac programs were also listed by those involved in the research.

Additional comments made by the participants of the study stressed the fact that entry-level word processing operators should be familiar with some basic computer operation like DOS (Disk Operating System) and know at least one popular word processing program such as WordPerfect 5.1. Other comments stated that word processing operators have basic secretarial skills, have good keyboarding skills, and have the ability to get along with others.

Significant Word Processing Competencies

The major purpose of this study was to determine the word processing competencies that were required of office employees who were word processing operators in business offices within the service area of the city of Yorkton, Saskatchewan.

The word processing competency checklist in Part B of the research questionnaire identified 60 enabling skills under 12 general areas of competence which may be performed by word processing operators. These enabling skills were rated according to their frequency of use with a 5-point Likert scale that included these choices: "Very Seldom," "Seldom," "Occasionally," "Frequently," and "Very Frequently."

The sequence in which the general areas of competence are presented in this section follow the same sequence in the way they were presented on the research instrument. The sequence for this section follows an identical sequence of the tables found in Chapter 3.

Since the number of research participants (27) was relatively small and for the purpose of adding significance to the research findings, both the "Frequently" and "Very Frequently" ratings were aggregated. From this procedure, any enabling skills with an aggregate percent of less than 40% was eliminated from the research as a required word processing competency to be included in the content of a basic word processing course.

From the research findings of the study, the twelve significant word processing general areas of competence and their enabling skills are identified in the following paragraphs of this section.

General Area of Competence - 1. SET UP THE SYSTEM

Enabling Skill	Frequently	Very Frequently	Aggregate
Turn the Machine On/Off	18.5%	59.3%	77.8%
Load/Access System Disk	11.1%	48.1%	59.2%
Load or Access Work Diskette or File	22.2%	59.2%	81.4%
Initialize a Disk	22.2%	22.2%	44.4%

All of the enabling skills that were used to SET UP THE SYSTEM were retained because the aggregate for all four enabling skills was above the 40% cut-off point. These four enabling skills should be included in basic word processing training courses.

General Area of Competence - 2. KEYBOARD (INPUT) - I

Enabling Skill	Frequently	Very Frequently	Aggregate
Use Alpha/Numeric Keys	7.4%	81.5%	88.9%
Use Code and Function Keys (underscoring, centering, boldfacing, etc.)	14.8%	81.5%	96.3%
Use Cursor/Locator Keys	11.1%	85.2%	96.3%
Use Special System Keys	22.2%	37.0%	59.2%
Use Word Wrap-Around (On/Off)	11.1%	48.1%	59.2%
Use Decimal Alignment	11.1%	14.8%	25.9%

Only one of the six enabling skills that formed the band for KEYBOARD (INPUT) - I, "Decimal Alignment," was eliminated from the research because the aggregate percentage for that competence was below 40%. The remaining five enabling skills should be part of a basic word processing instruction course.

General Area of Competence - 3. KEYBOARD (INPUT) - II

Enabling Skill	Frequently	Very Frequently	Aggregate
Use Headers/Footers with Automatic Page Numbering	14.8%	14.8%	29.6%
Paginate	25.9%	22.2%	48.1%
Use Multi-Columns	22.2%	11.1%	33.3%
Footnoting	0.0%	0.0%	0.0%
Use Super/Subscripts	0.0%	0.0%	0.0%

Only one enabling skill, "Paginate," was retained in the general area of competence, KEYBOARD (INPUT) - II. The percentage of use for the other four areas, "Use Headers and Footers with Automatic Page Numbering," "Use Multi-Columns," "Footnoting," and "Use Subscripts and Superscripts," were below the 40% cut-off point. These enabling skills were eliminated from the study and, according to the results of the study, would not be considered required skills for a basic word processing course. The enabling skill "Paginate" would be considered a requirement in such a course.

General Area of Competence - 4. CREATE DOCUMENTS

Enabling Skill	Frequently	Very Frequently	Aggregate
Format (setting tabs, margins, line spacing, pitch, etc.)	33.3%	48.1%	81.4%
Name Documents	18.5%	66.7%	85.2%
Use Prompts, Messages, and Menus	22.2%	59.2%	81.4%
Use Stop Codes	18.5%	18.5%	37.0%

For the general area of competence, CREATE DOCUMENTS, the enabling skill "Use Stop Codes" was eliminated because it was performed only 37% of the time by the participants. The three enabling skills "Format (setting tabs, margins, line spacing, pitch, etc.)," "Name Documents," and "Use Prompts, Messages, and Menus" were retained. These enabling skills should be considered part of the content organizers for a basic word processing course.

General Area of Competence - 5. REFORMAT TEXT

Enabling Skill	Frequently	Very Frequently	Aggregate
Restructure Margins, Tabs, Line Spacing, Pitch, etc.	25.9%	33.3%	59.2%
Hyphenate	11.1%	14.8%	25.9%
Repaginate	14.8%	11.1%	25.9%
Justify	18.5%	29.6%	48.1%

Two of the enabling skills that formed the band for REFORMAT TEXT, "Hyphenate" and "Paginate," each had an aggregate percentage of less than 40% and were dropped from the study. According to the results of the study, "Restructure Margins, Tabs, Line Spacing, Pitch, etc." and "Justify" should be required enabling skills for a basic word processing course to prepare operators with the skills required for them to successfully perform their duties.

General Area of Competence - 6. MINOR CORRECTING AND PROOFING

Enabling Skill	Frequently	Very Frequently	Aggregate
Delete, Insert, and Replace Text	7.4%	66.7%	74.1%
Correct Characters and Words while Keyboarding	22.2%	55.5%	77.7%
Scroll (horizontally/ vertically)	7.4%	59.2%	66.6%
Change Margins, Tabs, Line Spacing, etc.	22.2%	40.7%	62.9%

Because all of the enabling skills for the general area of competence MINOR CORRECTING AND PROOFING were above the 40% cut-off point, they were retained in the study. All of these 6 enabling skills should be included in a basic word processing course.

General Area of Competence - 7. MAJOR EDITING AND REVISING

Enabling Skill	Frequently	Very Frequently	Aggregate
Move Blocks or Columns of Text	25.9%	29.6%	55.5%
Delete, Insert, Replace Blocks/Columns of Text	29.6%	40.7%	70.3%
Global Search and Replace	22.2%	7.4%	29.6%
Use Spelling Verification	25.9%	37.0%	62.9%

The enabling skill "Using Global Search and Replace" from the band MAJOR EDITING AND REVISING had an aggregate percent below the 40% criteria for elimination; therefore, that enabling skill was removed from the research and would not be considered a required skill to be included in a basic word processing course. The remaining three enabling skills in this band should be part of the instructional content for a course in basic word processing.

General Area of Competence - 8. STORE AND FILE TEXT

Enabling Skill	Frequently	Very Frequently	Aggregate
Store More Than One Version of Document	11.1%	14.8%	25.9%
Delete Previous Versions of Documents	22.2%	14.8%	37.0%
Set Up and Maintain Files/Records	40.7%	37.0%	77.7%
Copy File(s) or a Part of File	25.9%	18.5%	44.4%

Two of the enabling skills found in the STORE AND FILE TEXT band had an aggregate percentage of less than 40%. These competencies; namely, "Store More Than One Version of

Document" and "Delete Previous Versions of Documents," were eliminated from the research. The two enabling skills "Set Up and Maintain Files/Records" and "Copy File(s) or a Part of File" had an aggregate percentage that exceeded the cut-off point and should be retained and considered as instructional content for a basic word processing course.

General Area of Competence - 9. RECALL AND RETRIEVE TEXT

Enabling Skill	Frequently	Very Frequently	Aggregate
Use Document Index (Directory)	14.8%	59.2%	74.0%
Access Stored Text	11.1%	62.9%	74.0%
Selectively Display Portions of Stored Text	11.1%	25.9%	37.0%
Use Security Codes	3.7%	25.9%	29.6%

The band for RECALL AND RETRIEVE TEXT consisted of four enabling skills. Two of these skills, "Selectively Display Portions of Stored Text" and "Use Security Codes," were below the cut-off point of 40% and were removed from the study. The two remaining enabling skills "Use Document Index (Directory)" and "Access Stored Text" had an aggregate percent of 74% and were retained. Both of these skills should be integrated as course content for a basic word processing course.

General Area of Competence - 10. PRINT (OUTPUT) TEXT

Enabling Skill	Frequently	Very Frequently	Aggregate
Start/Stop Printer	11.1%	74.1%	85.2%
Set Up Printer Using Menus or Special Print Commands	22.2%	44.4%	66.6%
Load Paper	14.8%	66.7%	81.5%
Print From Screen or Storage	3.7%	81.5%	85.2%
Use Print Queues	11.1%	29.6%	40.7%
Change Ribbons or Print Wheels	14.8%	25.9%	40.7%
Operate Automatic Sheet Feeder	18.5%	44.4%	62.9%

All seven enabling skills in the general area of competence for the band PRINT (OUTPUT) TEXT were rated above the 40% cut-off point and were retained as part of the findings of this study. All seven enabling skills in this band should be included in a basic word processing course.

General Area of Competence - 11. EXECUTE SPECIAL FEATURES

Enabling Skill	Frequently	Very Frequently	Aggregate
Use Forms	18.5%	14.8%	33.3%
Use Math or Arithmetic	11.1%	22.2%	33.3%
Sort/Select (Records List Processing)	3.7%	14.8%	18.5%
Merge (Form Letters)	22.2%	11.1%	33.3%
Assemble Document from a Number of Sources	11.1%	14.8%	25.9%
Use Communications Features	11.1%	11.1%	22.2%
Use the System Dictionary	7.4%	37.0%	44.4%
Use Glossary, Key Stroke Save or Key Stroke Storage	18.5%	18.5%	37.0%

Of the eight enabling skills that formed the band EXECUTE SPECIAL FEATURES, only one enabling skill, "Use System Dictionary," met the 40% criteria for retention. The other seven enabling skills did not meet this criterion, thus they were dropped from the research. The results of this study indicate that the enabling skill "Use System Dictionary" from this band of competencies should be part of the course content for basic word processing.

General Area of Competence - 12. EXECUTE OTHER SPECIALIZED FUNCTIONS

Enabling Skill	Frequently	Very Frequently	Aggregate
Use Graphics	7.4%	3.7%	11.1%
Use Photo-Composition Equipment	0.0%	3.7%	3.7%
Use Typesetting Equipment	3.7%	3.7%	7.4%
Perform System Trouble Shooting	0.0%	3.7%	3.7%
Write Special Programs	0.0%	3.7%	3.7%
Supervise Other Operators	3.7%	11.1%	14.8%

Because the enabling skills with general area of competence EXECUTE OTHER SPECIALIZED FUNCTIONS did not meet the requirements for 40% aggregate percentage frequency of use, they were all eliminated from the study. According to the results of this study, the enabling skills in this band should not be included in a basic word processing course.

In conclusion, of the 60 enabling skills that were identified on the research questionnaire used to collect data for this study, 26 skills were not being performed either

"Frequently" or "Very Frequently" by the participants. These enabling skills were eliminated from the study. As a result of the elimination of these 26 enabling skills, these competencies should not be included in basic word processing courses if instructional content is to be relevant and realistic. The remaining 34 competencies that were performed at least 40% of the time either "Frequently" or "Very Frequently" should be retained and emphasized by curriculum planners and instructors of courses dealing with word processing instruction if the students enrolled in these courses are to develop the entry-level skills required in the business world.

Positions Requiring Word Processing Competencies

It may be recalled that in addition to the major purpose of this study, four subproblems were also formulated. One of these subproblems was to identify the employment positions that existed in business offices in the Yorkton area that required the employee to possess word processing competencies.

From the collected data 77 job titles were identified as positions that required a knowledge of word processing. Although these titles varied greatly, the researcher categorized these into three groups: (1) support staff, (2) middle management, and (3) upper-level management.

Under the first category, support staff, were included the following job titles: Secretary, listed 16/77 or 20.8%; Administrative Assistant, listed 14/77 or 18.2%; Clerk-Typist, listed 11/77 or 14.3%; Receptionist, listed 11/77 or 14.3%; and Word Processing Operator, listed 5/77 or 6.5%. Other miscellaneous job titles such as Confidential Secretary, Support Workers, Steno/Dicta-Typist, Copywriters, News Reporters, Music Librarian, Health Records Technician, Computer Operator, Executive Assistant, Accountant, Front Desk Clerks were included in the first classification. Under the middle management classification were found the following job titles: Supervisor (2), Controller (2), Program Developer, and Education Assistant. Categorized under the upper-level management job titles were: Manager, Administrator, and Executive Director.

To generalize, office positions that require word processing competencies are no longer confined to support staff positions which are normally entry-level positions in business offices. These skills are also being used by staff that comprise middle and upper management. The traditional title "Secretary" was very much in existence to identify office workers whose role required that they possess word processing competencies. The job title "Administrative Assistant," a more timely term, was also popular with the research population, as well as the titles "Clerk-Typist" and "Receptionist."

In conclusion, the employment positions that existed in business offices in the Yorkton area that required the employee to possess word processing competencies could not be determined by a specific job title. The five most common job titles identified by the participants in the study were "Secretary," "Administrative Assistant," "Clerk-Typist," "Receptionist," and "Word Processing Operator." However, because the range of job titles requiring word processing operation was broad, the study does not conclude that these five titles are exclusive to this requirement.

Word Processing Equipment and Software Used in Research Area

A second subproblem of this study was to identify the word processing equipment and software currently used in business offices in the Yorkton area that required word processing competencies.

(1) Equipment

From the results of this study, it was found that microcomputers were the most popular type of equipment that were used to process correspondence in businesses in the Yorkton service area. Fifty percent or 60/120 units of equipment listed by the participants were microcomputers with the majority of these being IBM models or IBM compatibles (54 out of 60). Other models of microcomputers that were used by participants included Tandy, Laser, Apple, and Duncan.

The businesses surveyed indicated they had 28 electronic typewriters on which word processing could be accomplished. The most popular trade name was Sharp (10 out of 28), followed closely by IBM (9 out of 28). Other models of electronic typewriters that were identified included Xerox, Nakajima, Panasonic, and Olympia.

Eleven dedicated word processors were used by the businesses in this study. The most popular model was IBM (8 out of 11), two Xerox Memorywriters, and one Olytext 20.

Other equipment that was identified that could be used with word processing were mainframe computers (2 IBM and 1 Ford) and Digital mini computers.

(2) Software

The most popular word processing software package used by the businesses surveyed was WordPerfect (5.0 and 5.1) which was listed 16 times out of a total listing of 30. Other word processing packages identified were Displaywrite 4 (listed 3 times) and First Choice (listed twice). The following software packages were listed once: Lex, Framework, Webster's New World Writer, PC Write, Appleworks, PC II System, Easywriter, IBM Textpack 6, and AS 400.

Lotus 123 was the most popular spreadsheet software program which was listed 11 times out of 23. Other spreadsheet packages reported were: Microsoft, Supercalc, QuatroPro, 20/20, E.S.S., VP Planner, Paradox, PC II System, AccPac, and Internal System.

The most popular software program used for Database Management was D-Base III (5/12). Other programs used were Microsoft Works (3/12), Paradox, PC II System, PC/PF File.

Analysis of data showed that no software program for Graphics was rated the most popular, although seven programs that included graphics were listed once and included: Timeline, Newsmaker, Painted, Supercalc 4, VP Planner, Lotus 123, and Printshop.

Two software packages were identified for use for Desktop Publishing. These were Newsroom and Pagemaker.

There were a number of software packages listed under "Other." These were all accounting packages and included Quicken, Formtool, AccPac Plus, PC Document Analyzer, and MIG for Accounts. No software packages were identified that had communications capability.

To summarize the findings for the most popular word processing equipment and software used in 27 businesses that employed word processing operators in the Yorkton area, it was found that IBM computers or IBM compatibles were the most popular equipment used, and the most popular word processing software package used was WordPerfect. Lotus 123 was the most popular spreadsheet program used and D-Base III was the most popular database management program used. There were no preferences shown for software used with graphics, communications, or desktop publishing.

Additional Word Processing Competencies Required

The third subproblem of this study was to identify additional word processing competencies required by those who fill word processing positions in business offices in an ex-urban area such as the Yorkton area. Five of the respondents of the study indicated that all entry-level office employees be familiar with basic DOS (disk operating system) or basic computer knowledge. Two respondents indicated that keyboarding and typing skills were necessary. Two other responses indicated that word processing operators should have basic secretarial skills and that they should be able to get along with others.

The conclusion of this subproblem would indicate that office employees who perform word processing duties in business offices in the Yorkton area should be familiar with basic computer operation functions as well as the word processing competecies identified in this study, and should possess good secretarial and human relations skills.

Keyboarding Speed and Accuracy Recruitment Requirements

Since only one respondent indicated that speed and accuracy tests were given on the computer to prospective employees for positions that required word processing competencies with a business concern, this did not represent a significant portion of the research population; therefore, no speed and accuracy requirements can be deduced from the data collected from this study.

Recommendations Derived From The Study

The findings and conclusions of this study terminate in recommendations for those who design and teach word processing courses in office education programs. The findings and conclusions are derived from the analysis of the data that were collected with the research instrument.

Recommendations to Curriculum Planners

A major finding of this study was that 34 of the 60 enabling skills identified in Part B of the questionnaire were being performed either "Frequently" or "Very Frequently" by word processing operators in business offices in the Yorkton area. As a result of this finding, it is recommended that curriculum planners and instructors of basic or one-year word processing courses in Saskatchewan review these findings and include in the design of their courses the 34 enabling skills that were identified. The other enabling skills that were performed less frequently could be taught at an advanced level or for enhancement with students who finish the course early.

The general areas of competence and the enabling skills that could be used as content organizers for a course to prepare learners with basic word processing skills should include the following:

General Area of Competence - 1. SET UP THE SYSTEM

Enabling Skill

- Turn the Machine On/Off
- Load/Access System Disk
- Load or Access Work Diskette or File
- Initialize a Disk

General Area of Competence - 2. KEYBOARD (INPUT)

Enabling Skill

- Use Alpha/Numeric Keys
- Use Code and Function Keys (underscoring, centering, boldfacing, etc.)
- Use Cursor/Locator Keys
- Use Special System Keys
- Use Word Wrap-Around (On/Off)
- Paginate

General Area of Competence - 3. CREATE DOCUMENTS

Enabling Skill

- Format (setting tabs, margins, line spacing, pitch, etc.)
- Name Documents
- Use Prompts, Messages, and Menus

General Area of Competence - 4. REFORMAT TEXT

Enabling Skill

- Restructure Margins, Tabs, Line Spacing, Pitch, etc.
- Justify

General Area of Competence - 5. MINOR CORRECTING AND PROOFING

Enabling Skill

- Delete, Insert, and Replace Text
- Correct Characters and Words While Keyboarding
- Scroll (horizontally/vertically)
- Change Margins, Tabs, Line Spacing, etc.

General Area of Competence - 6. MAJOR EDITING AND REVISING

Enabling Skill

Move Blocks or Columns of Text
Delete, Insert, Replace Blocks/Columns of Text
Use Spelling Verification

General Area of Competence - 7. STORE AND FILE TEXT

Enabling Skill

Set Up and Maintain Files/Records
Copy File(s) or a Part of File

General Area of Competence - 8. RECALL AND RETRIEVE TEXT

Enabling Skill

Use Document Index (Directory)
Access Stored Text

General Area of Competence - 9. PRINT (OUTPUT) TEXT

Enabling Skill

Start/Stop Printer
Set Up Printer Using Menus or Special Print Commands
Load Paper
Print from Screen or Storage
Use Print Queues
Change Ribbons or Print Wheels
Operate Automatic Sheet Feeder
Use the System Dictionary

Specialists in Developing a Curriculum (DACUM) process to identify instructional content recommend that a band which consists of a general area of competence have no fewer than two enabling skills within the band. Consequently, the enabling skill "Use the System Dictionary" was placed in General Area of Competence - 9. PRINT (OUTPUT) TEXT.

Recommendations to Continuing Education Personnel

A second major finding of this study was the type of equipment and software that is popular for use with word processing in the Yorkton area. Non-university post-secondary education institutions such as the Saskatchewan Institute of Applied Science and Technology (SIAST) should be aware of this information when implementing word processing courses in outreach areas through the Regional Colleges throughout Saskatchewan. These courses should be specifically designed for adult students who are either entering the job market for the first time, are re-entering the job market after prolonged absence, or are seeking retraining in their present positions. The training should provide these students with salable skills on equipment and programs in current use so that their transition into the workplace or into new careers can be as stress-free as possible.

A cooperative form of education between business/industry and the educational institute would prove beneficial to both the student and the business/industry in acquiring and providing the necessary skills and knowledge required for success on the job. This cooperative form of education would prove beneficial to both student and institution because students would learn of the most recent office technology being used and would gain practical experience, and institutions could up-date their programs and their equipment as well as provide their instructors with inservice training.

The prospective employee should realize the importance of word processing training either for entry-level positions or middle/upper management positions in the variety of office careers which are labelled under many job titles. These employees must be aware that, to be successful, they should be able to perform the word processing enabling skills identified from this study. The aspiring individuals who enter this occupation should also realize that to be successful and progressive in an office career, continuing education with electronic equipment and software programs should be an ongoing activity and part of the job.

The skills and competencies identified in this research should be reviewed periodically so that word processing courses are kept dynamic and current with office demands, evolving technology, and software. Similarly, the equipment, the software, and the instructional materials in office education programs should be up-dated on a regular basis to keep pace with the changing office environment.

Supervisors of word processing personnel should attempt to match employees with the equipment and programs on which these personnel were trained and provide in-service training to those with a different orientation. These supervisors should be supportive of student work experience programs with office education courses at local educational institutions so that the students in these courses could make the transition from education to work more easily and successfully. Word processing supervisors should allow word processing operators to further enhance their expertise by providing assistance and support for further education and professional activities.

Recommendations for Further Research

It is recommended that this research be replicated in the two largest urban centers in Saskatchewan, Regina and Saskatoon, to compare the results from those studies with the results of this study to determine if there is a general relationship. Curriculum could be developed that would allow students greater occupational mobility. Such a study might use the results of this research as its base to identify additional areas of word processing competencies and enabling skills that were not identified in the current study.

It is recommended that research be conducted to identify the interpersonal skills that are required of word processing operators so that these skills can become part of the instructional content of courses that are used to prepare word processing operators. Should this research be conducted, the results could be integrated with the enabling skills required of word processing operators so that a well-rounded operator would emerge from such courses.

A similar study could be conducted on a quinquennial basis to identify the current technology that has evolved and is being used in business and to identify the software packages that are being used to support that technology. Educators and curriculum planners would then become aware of the word processing equipment in use, both hardware and software; and the curriculum they offer could be modified to produce competent word processing operators with the necessary skills. As a result of such research, the DACUM chart for a word processing operator could be readily up-dated.

Observations

In the course of conducting this study, the researcher made several observations which do not have a direct bearing on the results of the study, but may be of interest or of benefit to those researchers who may be conducting similar studies in this area.

The research participants of this study were eager to participate and were very cooperative and prompt in completing and returning the research questionnaires. It was evident from the initial telephone contacts made to solicit participants and with the 100% rate of return of completed questionnaires that those who participated in the study had a great deal of interest in the research. This was reinforced when several participants indicated to the researcher that they were pleased to be a part of the study.

Another observation of the researcher was that the personal contact the researcher had with participants gave them a chance to inquire more about the study and its implications for them. This contact also provided the researcher with the opportunity to inquire whether the participant had any problems with the questionnaire. It was through this contact that the researcher became aware of the fact that when no response was circled on Part B of the questionnaire that was used to indicate that a particular enabling word processing skill was NEVER used. This choice was not available to the respondents on the research instrument. During these personal contacts, research participants were encouraged to make telephone contact with the researcher if they had any problems or concerns about the research instrument. Only one such inquiry was made.

An initial observation of this study was that the number of businesses in the Yorkton area that used word processing in their daily operations was surprisingly low. Twenty-seven of the 92 businesses contacted used word processing, which represented less than one-third of the total population (29.3%). The researcher made the assumption that a larger number of businesses used word processing for their business correspondence. The 27 businesses involved in the study, however, did use word processing quite extensively. Several of the businesses who did not use word processing at the time of the initial telephone contact had indicated that this office concept was being planned for in the near future. A number of these contacts inquired about the availability of word processing courses for themselves or for their employees.

It was observed from the responses to one of the questions on the questionnaire that the term "word processing center" was not understood by some of the participants. Close examination of the questionnaires revealed that 5 of the 10 respondents that indicated that their company had a word processing center had 3 to 5 word processing employees, 4 had only 2 word processing employees, and one respondent had only one word processing employee. This term should be clarified or reworded when used in applicable studies in the future.

BIBLIOGRAPHY

Books

Hume, V. S. (1989). Information processing in today's office. Toronto: McGraw-Hill Ryerson Limited.

Kupsh, J. & Whitcomb, S. (1987). The electronic office. Mission Hills, California: Glencoe Publishing Company.

Kutie, R. C. & Rhodes, J. L. (1986). Secretarial procedures for the electronic office. Second Edition. New York: John Wiley & Sons.

New Merriam-Webster Dictionary. (1989). Springfield, Massachusetts: Merriam-Webster Inc.

Stultz, R. A. (1982). The word processing handbook. Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Periodicals

American Management Association. (1988). First annual secretaries' briefing. Cross-Canada Comment, Vol. XVIII, No. 3, Spring 1989, pp. 12-13. Reprinted from Alberta Business Education Association Newsletter, Vol. XI, No. 2, June 1988.

Barton, S. (1986). The competencies, training loci, job qualifications, and company training of word processing operators. Journal of Studies in Technical Careers, Vol. VIII, No. 1, pp. 11-23.

Berg, G. A. (1985). The future of information processing. Business Education Forum, April-May, pp. 4-9.

Chevreau, J. (1985). Technology moving toward smaller enterprises. Office Equipment & Methods, May, pp. 31-32.

Curchack, N. (1989). Two-year college secretarial programs--successes or failures? Business Education Forum, March, pp. 19-20.

Dalton, E. T. (1984). Which way to the integrated office? Office Equipment & Methods, June, pp. 41-44.

Drysdale, C. (1987). A brave new workplace. Office Equipment & Methods, September, pp. 65-67.

Duffy, J. (1985). Integrated systems: A maturing industry? Office Equipment & Methods, October, pp. 25-26.

Duffy, J. (1984). Software sampler. Office Equipment & Methods, May, pp. 40-42.

Fenner, S. (1989). Challenges of a changing workplace. The Secretary, August/September, pp. 33-35.

Fruehling, R. T. (1989). Curriculum ideas for high-tech office education. SBTA Intercom, Vol. 24, pp. 22-24. Reprinted from BCBEA Journal, Vol. 2, No. 1, Winter 1989.

Gary, B., Callahan, G. & Lanoue, P. (1985). Implications of information processing for vocational schools. Business Education Forum, April-May, pp. 28-34.

Golan, S. & Smeltzer, L. (1984). Information processing: A vital tool for the late 80's. Business Education Forum, April-May, pp. 30-34.

Greenan, J. P. & Amick, R. D. (1986). Needs of vocational programs in teaching interpersonal skills. Journal of Studies in Technical Careers, Vol. VIII, No. 1, pp. 25-32.

Grever, J. & Zimmerman, H. (1988). How are we meeting the challenge of preparing teachers and students in office technology? The Delta Pi Epsilon Journal, Vol. XXX, No. 1, pp. 2-13.

Hibler, J. A. & Fry, B. C. (1985). Information processing in the business education curriculum. Business Education Forum, April-May, p. 3.

Hill, R. E. M. (1990). What does the working world expect of our graduates? Cross-Canada Comment, Vol. XIX, No. 1, Fall, pp. 5-8. Reprinted from Manitoba Spectra, Vol. XVI, No. 1, January, 1989.

Holtzkamper, C. (1985). The job market for information processing. Business Education Forum, April-May, pp. 10-15.

Keane, D. (1989). Visions of a changing role. The Secretary, April, pp. 8-15.

Kruk, L. B. (1990). Technosecs: Are you ready? The Secretary, April, pp. 10-11.

Lutsko, J. (1988). Simulating word processing employment tests. Business Education Forum, April, pp. 16-18.

Lambrecht, J. J. (1989). Research questions related to teaching software. Business Education Forum, February, pp. 25-28.

Lee, L. W. & Moore, W. C. (1989). Technology brings equality to the business sector. The Secretary, February, pp. 14-22.

Luke, C. M. (1989). Office procedures involves more than technical skills. Business Education Forum, May, pp. 11-12.

Mann, P. (1984). Features of award-winning word processing program. Business Education Forum, April, pp. 16-20.

McMillen, S. (1987). Secretarial development: The other side of the coin. Speaker at Secretary Speakout '87, Atlanta. The Secretary, June-July, p. 26.

Meggison, P. F. (1985). Implications of information processing for two-year collegiate programs. Business Education Forum, April-May, pp. 25-27.

Milne, J. (1984). WP software elevates micro. Office Equipment & Methods, May, pp. 38-39.

Morrison, J. L. & Morrison, P. P. (1989). Technology in business and changing expectations. Business Education Forum, May, pp. 3-6.

Neal, D. A. (1984). What will office procedures be after 1984? Business Education Forum, April-May, pp. 35-39.

Neal, W. G. (1987). Beyond computer literacy: Information literacy. Business Education Forum, December, pp. 14-15.

Nellermoe, D. A. (1989). Word processing personnel: Entry-level expectations. Business Education Forum, May, pp. 14-15.

Patton, M. R. (1990). Typewriters: The cream of the crop. The Secretary, February, pp. 6-8.

Policies Commission for Business and Economic Education. (1989). This we believe about the impact of change due to information technologies. Business Education Forum, October, pp. 5-6.

Ruby, R. (1984). What do micros mean for business education? Business Education Forum, April, pp. 3-5.

Scott, J. C. (1985). Human dimensions of information processing. Business Education Forum, April-May, pp. 16-21.

Strassman, P. A. (1987). Knowledge management: Opportunity for the secretary of the future. Keynote address at Secretary Speakout '87, Atlanta. The Secretary, June-July, pp. 14-17.

Switzer, S., Featheringham, R. & Thomas, L. (1989). Information and training: Keys to implementing office technology. The Secretary, October, pp. 25-26.

Ubelacker, S. (1987). Toward a new definition of basic skills in education. Cross-Canada Comment, Vol. XVII, No. 2, Winter, pp. 17-19. Reprinted from BEC Synoptic (Alberta), Vol. XXVI, No. 1, Fall, 1985.

VanHuss, S. (1987). Education, training, and development from the perspective of the organization. Speaker at Secretary Speakout '87, Atlanta. The Secretary, June-July, pp. 24-25.

Wohl, A. D. (1984). The integrated office: A status report. Office Equipment & Methods, October, pp. 23-27.

Wohl, A. D. (1984). New look word processing. Office Equipment & Methods, September, pp. 39-40.

Wohl, A. D. (1985). Word processing and the PC. Office Equipment & Methods, September, pp. 29-31.

Wong, S. M. (1988). Word processing instruction: A generic approach. Business Education Forum, January, pp. 21-22.

Dissertations, Theses, Project Papers and Colloquiums

Jacobson, B. L. (1986). *Office automation and secretarial careers*. Colloquium for the degree of Master of Education. Edmonton: University of Alberta.

Kadyschuk, B. L. (1988). *What is it that affects/affirms the human spirit in a modern technological office*? Project paper. Edmonton: University of Alberta.

MacKay, M. (1978). *Time spent by correspondence secretaries and supervisors in selected businesses having word processing installations in Edmonton, Alberta*. Colloquium, Master's degree. Edmonton: University of Alberta.

Marchand, J. M. (1985). *A study to compare entry level word processing enabling skills to first year work skills*. Unpublished master's thesis. University of Alberta, Edmonton.

Persons, V. A. (1986). *A study: Word processing needs of business organizations in Worcester, Massachusetts, area*. Unpublished doctoral dissertation. University of Massachusetts, Worchester.

Powell, S. J. (1988). *Identification of entry-level competencies needed by word processing operators as determined by word processing managers, operators, and business educators in Arkansas*. Unpublished doctoral dissertation. University of Mississippi.

Pura, A. B. (1970). *An analysis of office activities using Nobel's taxonomy*. Unpublished master's thesis. University of Alberta, Edmonton.

Government Publications and Reports

Alvic, F. M. & Newkirk-Moore, S. (1984). *Procedures for conducting a job analysis: A manual for the Comtask database*. Knoxville, Tennessee: U.S. Department of Education.

Saskatchewan Education. (1987). *Preparing for the year 2000: Adult education in Saskatchewan*. Regina: Government of Saskatchewan.

SIAST Calendar, 1990-91. Regina: Saskatchewan Education.

Department of Manpower and Immigration. (1971). Canadian classification and dictionary of occupations, Vol. 1. Ottawa: Department of Manpower and Immigration.

Department of Manpower and Immigration. (1989). Canadian classification and dictionary of occupations guide, Ninth edition. Ottawa.

Interviews

Bodnarchuk, D. (October 1990). Administrator of Anderson Lodge, Yorkton, SK.

Greenough, S. (April 1991). Regional College Coordinator, Office Education, Saskatchewan Institute of Applied Science and Technology, Wascana Campus, Regina.

Hudye, C. (October 1990). Administrator, Parkland Regional College, Yorkton, SK.

Ostrowercha, V. (August 1991). Service Needs Determination Officer, Canada Employment and Immigration Center, Yorkton, SK.

APPENDIX A

In this appendix can be found a copy of the covering letter that was sent to 27 word processing operators or supervisors selected as the research population.

Also included in this appendix is a copy of the research questionnaire that was enclosed with the covering letter.

182-D Manitoba Avenue
Yorkton, SK
S3N 3G8

(Current Date)

(Return Address of Participant)

Dear (Participant):

Thank you for agreeing to complete a research questionnaire for the study I am conducting entitled "A Study to Identify Word Processing Competencies in Office Positions in the Yorkton, Saskatchewan, Area." As I explained to you during our telephone conversation, it is hoped that the results of this research may be used to design meaningful word processing courses at the post-secondary level.

After completing the questionnaire, please return it to me in the enclosed stamped and self-addressed envelope. The deadline date for returning the questionnaire is May 3, 1991. I would appreciate your honoring this date so that the research work can be completed according to an established time schedule.

The information you provide on this questionnaire will be used only for research purposes and will be treated as privileged information. Should you wish to withdraw from the research at any time, you may do so without prejudice. At the conclusion of this study all questionnaires will be destroyed. A copy of the abstract of the study will be available to those who participate in the research.

Thank you again for your cooperation. Please feel free to contact me at 782-0370 or 783-6576 if you have any questions about the questionnaire.

Sincerely,

Ms. Bernice Ewachow

Enclosures: Questionnaire
Stamped self-addressed envelope

WORD PROCESSING SUPERVISOR/OPERATOR

QUESTIONNAIRE

ID________

INSTRUCTIONS: Please answer the following questions to the best of your ability. It is not necessary to identify yourself on the questionnaire. The number in the upper right corner of this questionnaire is for follow-up purposes only. All information will be kept confidential and will be reported as group data.

For the purpose of this study, word processing is defined as "a method of producting written communication at top speed, with the greatest accuracy, the least effort, and the lowest possible cost, through the combined use of proper procedures, automated equipement, and trained personnel."

Your cooperation in filling out this questionnaire is important and greatly appreciated.

PART A: Please place a check mark (✓) beside your desired response and/or respond by writing in the space provided whenever required.

FOR OFFICE USE ONLY

1. What is the approximate size of your company?

___ ___ ___ 1

(1) ______One to 25 employees
(2) ______26 to 50 employees
(3) ______51 to 100 employees
(4) ______Over 100 employees

___ (5)

2. How many employees do you have that require word processing competencies?

(1) ______One
(2) ______Two
(3) ______3 to 5
(4) ______Over 5: Please specify______________

___ (6)

3. Is word processing a requisite for the recruitment of employees in the positions identified in number 2 above?

(1) ______Yes
(2) ______No
(3) ______Not sure

___ (7)

FOR OFFICE
USE ONLY

___ ___ ___ 1

4. What are the job titles in your company that require word processing competencies? (Check all those that apply)

(1)______Word Processing Operator ___ (8)
(2)______Secretary ___ (9)
(3)______Clerk Typist ___ (10)
(4)______Receptionist ___ (11)
(5)______Administrative Assistant ___ (12)
(6)______Other: Please specify________________ ___ (13)

5. What type of equipment does your company use for word processing? (Please indicate the NUMBER of stations for each in the blank at the LEFT and the NAME OF THE EQUIPMENT in the blank at the right.)

NUMBER: NAME:

(1)______Electronic typewriters________________ ___ (14)

(2)______Word processors ________________ ___ (15)

(3)______Microcomputers ________________ ___ (16)

(4)______Other: Please specify: ________________ ___ (17)

6. What software packages are your word processing operators required to operate? Please check all that apply and specify the name of the package in the blank to the right (WordPerfect, Lotus 1,2,3, etc.).

SPECIFY NAME:

(1)______Word Processing ________________ ___ (18)

(2)______Spreadsheet ________________ ___ (19)

(3)______Data Base Management________________ ___ (20)

(4)______Graphics ________________ ___ (21)

(5)______Communications ________________ ___ (22)

(6)______Desktop Publishing ________________ ___ (23)

(7)______Other ________________ ___ (24)

FOR OFFICE USE ONLY

___ ___ ___ 1

7. Does your company have a centralized word processing center?

(1) ______Yes
(2) ______No
(3) ______Not sure

___ (25)

8. Approximately how many hours per week (on the average per operator) do operators spend using word processing competencies at your company?

(1) ______10 to 20 hours
(2) ______21 to 30 hours
(3) ______31 to 40 hours
(4) ______Over 40 hours

___ (26)

9. Are employment tests given on the computer when interviewing prospective employees for positions that require word processing competencies?

(1) ______Yes
(2) ______No
(3) ______Not sure

___ (27)

* IF YES, ANSWER QUESTIONS 10, 11 AND 12. IF NOT, GO TO #13.

10. Do these employment tests include straight-copy timed keyboarding tests?

(1) ______Yes
(2) ______No
(3) ______Not sure

___ (28)

11. What are the keyboarding speed/accuracy requirements for the tests in #10?

(1) ______40 NWPM
(2) ______50 NWPM
(3) ______60 NWPM
(4) ______OTHER: Please specify____________________
(5) ______No speed/accuracy tests given

___ (29)

12. What is the error allowance on the tests in #10?

(1) ______5 errors or less
(2) ______6 errors
(3) ______7 errors or more
(4) ______No speed/accuracy tests given

___ (30)

FOR OFFICE
USE ONLY

___ ___ ___ 1

13. In your opinion, should all office employees have word processing competencies for entry-level employment?

(1) ______Yes
(2) ______No
(3) ______Not sure

___ (31)

14. In your opinion, should a beginning word processing operator be able to operate various word processing software programs?

(1) ______Yes
(2) ______No
(3) ______Not sure

___ (32)

If "YES," PLEASE IDENTIFY WHICH PROGRAMS:

____

____

____

15. Please identify any related knowledge or skills that you feel entry-level word processing operators should have which may have been omitted in this questionnaire:

____

____

____

____

____

PART B: WORD PROCESSING COMPETENCIES CHECKLIST

Listed below are a number of functions that may be performed by word processing operators. The scale is to gather information on the frequency of individual word processing functions that are actually being performed on the job.

Please read each word processing function carefully, and CIRCLE the appropriate response according to the RESPONSE KEY.

RESPONSE KEY: 1. Very Seldom (VS)
2. Seldom (S)
3. Occasionally (O)
4. Frequently (F)
5. Very Frequently (VF)

		VS	S	O	F	VF	FOR OFFICE USE ONLY
I.	SET UP THE SYSTEM						___ ___ ___ 2
1.1	Turn the machine on and off. . .	1	2	3	4	5	___ (5)
1.2	Load or access system disk . . .	1	2	3	4	5	___ (6)
1.3	Load or access work diskette or file	1	2	3	4	5	___ (7)
1.4	Initialize a disk	1	2	3	4	5	___ (8)
2.	KEYBOARD (INPUT) - I						
2.1	Use alpha and numeric keys . . .	1	2	3	4	5	___ (9)
2.2	Use code and function keys (underscoring, centering, etc.).	1	2	3	4	5	___ (10)
2.3	Use cursor or loacator keys. . .	1	2	3	4	5	___ (11)
2.4	Use special system keys	1	2	3	4	5	___ (12)
2.5	Use word wrap-around (on/off). .	1	2	3	4	5	___ (13)
2.6	Decimal alignment	1	2	3	4	5	___ (14)
3.	KEYBOARD (INPUT) - II						
3.1	Use headers and footers with automatic page numbering	1	2	3	4	5	___ (15)
3.2	Paginate	1	2	3	4	5	___ (16)

		VS	S	O	F	VF	FOR OFFICE USE ONLY ___ ___ ___ 2
3.3	Use multi-columns	1	2	3	4	5	___ (17)
3.4	Footnoting	1	2	3	4	5	___ (18)
3.5	Use subscripts and superscripts.	1	2	3	4	5	___ (19)
4.	CREATE DOCUMENTS						
4.1	Format (setting tabs, margins, line spacing, pitch, etc.)	1	2	3	4	5	___ (20)
4.2	Name documents	1	2	3	4	5	___ (21)
4.3	Use prompts, messages, and menus	1	2	3	4	5	___ (22)
4.4	Use stop codes	1	2	3	4	5	___ (23)
5.	REFORMAT TEXT						
5.1	Restructure margins, tabs, line spacing, pitch, etc.	1	2	3	4	5	___ (24)
5.2	Hyphenate (manual and automatic)	1	2	3	4	5	___ (25)
5.3	Repaginate	1	2	3	4	5	___ (26)
5.4	Justify	1	2	3	4	5	___ (27)
6.	MINOR CORRECTING AND PROOFING						
6.1	Delete, insert, and replace text	1	2	3	4	5	___ (28)
6.2	Correct characters and words while keyboarding	1	2	3	4	5	___ (29)
6.3	Scroll (horizontally and vertically to review text)	1	2	3	4	5	___ (30)
6.4	Change margins, tabs, line spacing, etc.	1	2	3	4	5	___ (31)
7.	MAJOR EDITING AND REVISING						
7.1	Move blocks or columns of text	1	2	3	4	5	___ (32)
7.2	Delete, insert, replace blocks/ columns of text	1	2	3	4	5	___ (33)

		VS	S	O	F	VF	FOR OFFICE USE ONLY
							___ ___ ___ 2
7.3	Use Global Search and Replace .	1	2	3	4	5	___ (34)
7.4	Use Spelling Verification . . .	1	2	3	4	5	___ (35)
8.	STORE AND FILE TEXT						
8.1	Store more than one version of a document	1	2	3	4	5	___ (36)
8.2	Delete previous versions of documents	1	2	3	4	5	___ (37)
8.3	Set up files and maintain records	1	2	3	4	5	___ (38)
8.4	Copy file(s) or a part of a file	1	2	3	4	5	___ (39)
9.	RECALL AND RETRIEVE TEXT						
9.1	Use document index (directory) .	1	2	3	4	5	___ (40)
9.2	Access stored text	1	2	3	4	5	___ (41)
9.3	Selectively display portions of stored text, such as a specific page	1	2	3	4	5	___ (42)
9.4	Use security codes	1	2	3	4	5	___ (43)
10.	PRINT (OUTPUT) TEXT						
10.1	Start/Stop printer	1	2	3	4	5	___ (44)
10.2	Set up printer using menus or special print commands	1	2	3	4	5	___ (45)
10.3	Load paper	1	2	3	4	5	___ (46)
10.4	Print from screen or storage . . .	1	2	3	4	5	___ (47)
10.5	Use print queues	1	2	3	4	5	___ (48)
10.6	Change ribbons or print wheels .	1	2	3	4	5	___ (49)
10.7	Operate automatic sheet feeder .	1	2	3	4	5	___ (50)

	VS	S	O	F	VF	FOR OFFICE USE ONLY
						_ _ _ 2
11. EXECUTE SPECIAL FEATURES						
11.1 Use forms	1	2	3	4	5	_ (51)
11.2 Use math or arithmetic	1	2	3	4	5	_ (52)
11.3 Sort and Select (Records/List-Processing)	1	2	3	4	5	_ (53)
11.4 Merge (Form Letters)	1	2	3	4	5	_ (54)
11.5 Assemble a document from a number of sources	1	2	3	4	5	_ (55)
11.6 Use communications features	1	2	3	4	5	_ (56)
11.7 Use the system dictionary	1	2	3	4	5	_ (57)
11.8 Use Glossary, Key Stroke Save, or other key stroke storage features	1	2	3	4	5	_ (58)
12. EXECUTE OTHER SPECIALIZED FUNCTIONS						
12.1 Use graphics	1	2	3	4	5	_ (59)
12.2 Use photocomposition equipment	1	2	3	4	5	_ (60)
12.3 Use typesetting equipment	1	2	3	4	5	_ (61)
12.4 Perform system trouble-shooting	1	2	3	4	5	_ (62)
12.5 Write special programs	1	2	3	4	5	_ (63)
12.6 Supervise other operators	1	2	3	4	5	_ (64)

APPENDIX B

In this appendix can be found a copy of Part B of Marchand's research questionnaire in the study _To Compare Entry Level Word Processing Enabling Skills to First Year Work Skills_, 1985.

NOTE: APPENDIX B has been taken out due to copyright restrictions.
(pages 159 - 165)

APPENDIX C

BUSINESSES PARTICIPATING IN THE STUDY

PARTICIPATING BUSINESSES

Anderson Lodge, Yorkton, SK
City of Yorkton, Yorkton, SK
Ducks Unlimited, Yorkton, SK
Logan Stevens Equipment Rental, Yorkton, SK
Gourmet Cup, Yorkton, SK
Harvest Meats Ltd., Yorkton, SK
Leon-Ram Enterprises Inc., Yorkton, SK
Morris Industries Ltd., Yorkton, SK
Parker & Quine Chartered Accountants, Yorkton, SK
Parkland Agriplex, Yorkton, SK
Potzus Construction Ltd., Yorkton, SK
Royal Ford Lincoln Mercury Ltd., Yorkton, SK
Sacred Heart High School, Yorkton, SK
Shelwin House, Yorkton, SK
Toronto Dominion Bank, Yorkton, SK
Western Grocers, Yorkton, SK
Yorkton Broadcasting Co. Ltd., Yorkton, SK
Yorkton Credit Union Administration Office, Yorkton, SK
Yorkton Tribal Administration, Inc., Yorkton, SK
Yorkton Mental Health Center, Yorkton, SK
Yorkton Regional Adult Education, Yorkton, SK
Yorkton Regional High School, Yorkton, SK
Canora Home Care, Canora, SK
Sakimay Band Authority, Grenfell, SK
Kamsack School Unit 35, Kamsack, SK
Duck Mountain Lodge Ltd., Kamsack, SK
St. Paul Lutheran Home, Melville, SK

VITA

Name: Bernice L. Ewachow

Birth: October 12, 1943; Canora, Saskatchewan

Education: 1991, University of Alberta, M.Ed.

1973, University of Regina, B.Ed.

Teacher Certification: Saskatchewan Professional A Certificate

Positions: Instructor: Saskatchewan Institute of Applied Science and Technology, Office Education Program, Yorkton, SK, 1986-91;

Teacher: Yorkton Regional High School, Yorkton, SK, 1979-86;

Teacher: Sturgis Composite High School, Sturgis, SK, 1970-79;

Practical Office Experience, 1961-62.

Memberships:
Saskatchewan Business Teachers Association;
Canadian Association for the Study of Adult Education
Canadian Association of Business Education Teachers
Saskatchewan Teachers' Federation

Travel: Europe, England, Caribbean, Mexico, United States, Canada.